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## 10<sup>th</sup> DIMF 2015

### Introduction New / Upgraded Products



May 2015  
Doosan Infracore  
Machine Tools BG

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# Overview

## Concept

- **10<sup>th</sup> DIMF (Doosan International Machine tools Fair)**  
**Optimal Solutions for the Futures**  
*“ Reliable PARTNER, DOOSAN ”*

## Dates/ Location

- **MAY 13-16, 2015 [4days] @ CHANGWON, S. Korea – Namsan & Sungju factory**
  - 13(Wed) ~ 14(Thu) Europe / Asia / Africa / Oceania
  - 14(Thu) ~ 15(Fri) America / China
  - 15(Fri) Korea
  - 16(Sat) Doosan machine tool's family day

## Open House Info.

- **Exhibited models : Total 83 models**
  - **TC 33, MC 40, HBM 3, DCM 2, ST 5**
  - Namsan factory (65units) : Best sellers, 5axis/ multi-tasking, Die&Mold, Small-to-Middle range models
  - Sungju factory (18units) : Large machines(DCM, DBC, Large VTC), etc.
- **Expected visitors : 4,600pax (DIMF 2013 : 4,520pax)**
  - Overseas : 770 (Europe 320, China 180, USA 150, Emerging 120)
  - Korea : 1,600, Partner : 830
  - Employee's family/others : 1,400
- **Highlights**
  - New Sungju factory tour specified for large machines production
  - 83 exhibited models including new generation, 5 axis, multi-tasking, large machines
  - Optimized DOOSAN NC technology
  - DOOSAN Automation Solutions for high productivity and robot application
  - Expects largest ever visitors(4,600pax)



# Products list

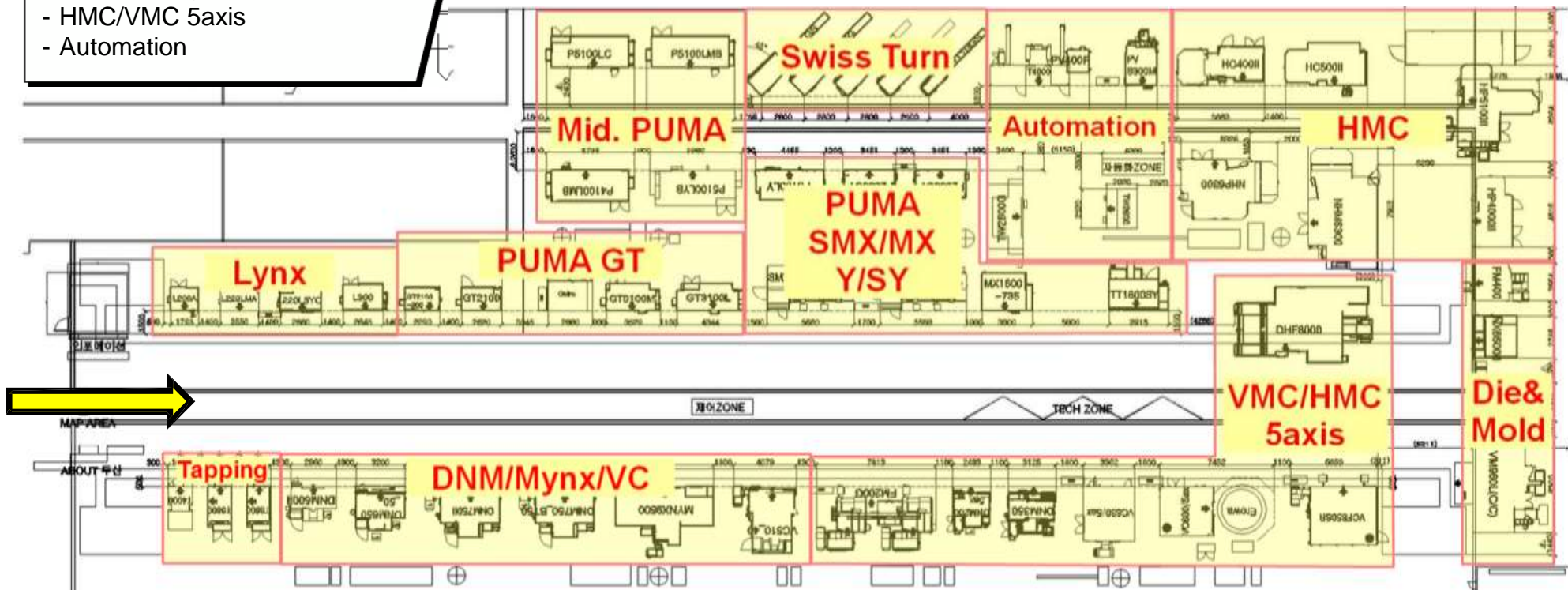
- **Total 83 models @ Namsan / Sungju factory**  
–18 new models in 2015

Group			Model	
Turning Center	HTC	Lynx	5	Lynx 200A(D300), Lynx 220LMA, Lynx 220LSYC, Lynx 220LSYC(S828D), Lynx 300
		PUMA GT	5	<b>PUMA GT2100/300 New</b> , PUMA GT2100(D300), PUMA GT2600M, <b>PUMA GT3100M New</b> , <b>PUMA GT3100L New</b>
		PUMA small	3	PUMA 2600SY, PUMA 2600SY, PUMA 3100LY
		PUMA middle	5	PUMA 4100LMB, PUMA 5100LMB, PUMA 5100LC, PUMA 5100LYB, PUMA 5100LYB(S840D)
		PUMA large	2	PUMA 700XLY, PUMA 800LB
		PUMA SMX/MX	3	<b>PUMA MX1600ST/735 New</b> , PUMA SMX2600S, PUMA SMX3100S
		PUMA TT	2	PUMA TT1800SY, PUMA TT1800SY(S840D)
		<b>PUMA TW</b>	2	<b>PUMA TW2600-GL New</b> , <b>PUMA TW2600 New</b>
	VTC	<b>PUMA V/VTR</b>	4	PUMA V400P, <b>PUMA V8300M New</b> , <b>PUMA VTR1216 New</b> , <b>PUMA VTR1216M New</b>
Swiss Turn		PUMA ST	5	<b>PUMA ST10GS New</b> , PUMA ST20G <sup>Up</sup> , <b>PUMA ST26GS New</b> , PUMA ST32G <sup>Up</sup> , PUMA ST35GS
Machining Center	VMC	Tapping	4	T 4000, T 4000, <b>T 3600D New</b> , <b>T 3600D New(D300)</b>
		DNM / Mynx	6	DNM 500 II, DNM 650 II(S828D), <b>DNM 650/50 II New</b> , DNM 750 II, <b>DNM 750/50 II New</b> , <b>Mynx 9500 New</b>
		VC	1	VC 510
		Die&Mold	4	FM 400 <i>linear</i> , NX 5500 II, NX 6500 II(iTNC530), VM 960L
		VMC 5axis	7	DNM 200/5AX, DNM 350/5AX, VC 630/5AX, VC 630/5AX(iTNC530), VC 630/5AX(S840D), 2 x FM 200/5AX <i>linear</i> (iTNC530)
		VCF	2	VCF 850SR(iTNC530), VCF 850LSR(iTNC530)
	HMC	HC/HP	4	HC 400 II, HC 500 II, HP 4000 II, HP 5100 II
		NHP/NHM/HM	3	NHP 6300, NHM 6300, <b>HM 1250W New</b>
		<b>DHF</b>	1	<b>DHF 8000 New</b>
	NC Bor.	DBC	3	DBC 130SL, DBC 110 II, DBC 130L II
	Double Col.	BM / DCM	3	BM 2740M, DCM 3260F, DCM 3250F
Total			74	
			+	
@ OSC (Optimal Solution Center)			9	PUMA MX2600ST, PUMA SMX2600S, T 4000, T 4000L(D300), DT 360D, NX 6500 II, DNM 200/5AX, VC 630/5AX(iTNC530), VCF 850LSR(iTNC530)

# Layout of 1<sup>st</sup> hall @ Namsan factory

## Compared to DIMF2013

- Same space
- More machines(65models)
- Multi-tasking
- HMC/VMC 5axis
- Automation





## Layout of 2<sup>nd</sup> hall @ Sungju factory

**New factory**  
**for large size machines**  
- 18models



# Table of Contents

## **A. Turning Center**

- 1. Lynx series**
- 2. PUMA GT series**
- 3. PUMA 2100 / 2600 / 3100 series**
- 4. PUMA 4100 / 5100 series**
- 5. PUMA 600 / 700 / 800 series**
- 6. PUMA SMX / MX series**
- 7. PUMA TT series**
- 8. PUMA TW series**
- 9. PUMA V series**
- 10. PUMA VTR series**
- 11. PUMA ST series**

## **B. Machining Center**

## New Design

### New products

#### New splash guard

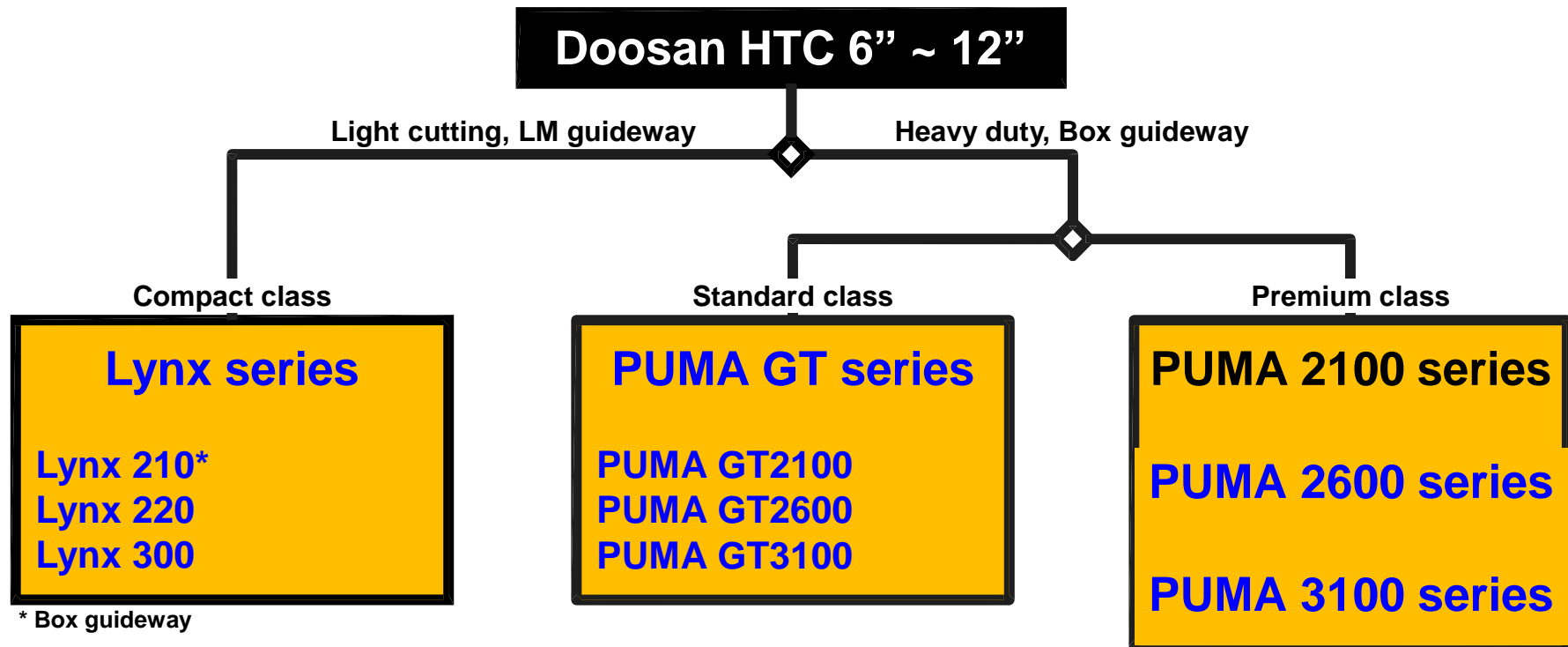


### Mass production products



# Small size HTC

Concept...





## 6 inch chuck size, Compact, Box guideway

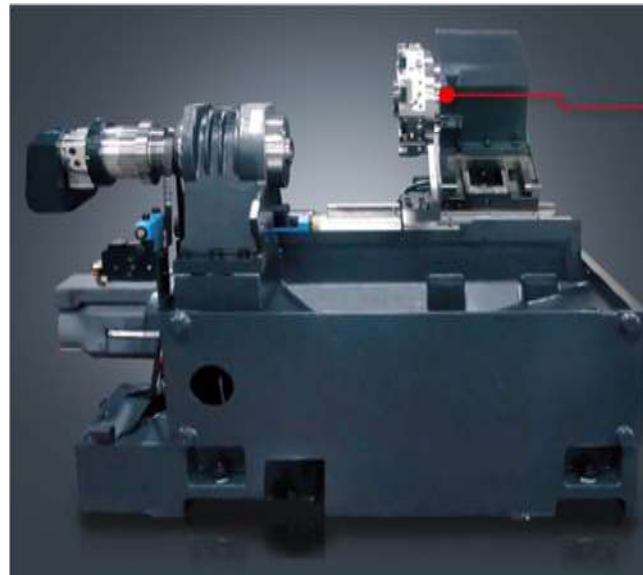
[DIMF]  
Out race bearing  
(Forging)



DOOSAN CNC D300

Improved covers

- Higher productivity & more convenience by DOOSAN CNC D300 from Aug. 2015
- More productivity & stability with new turret!
  - Hydraulic indexing motor  $\hat{=}$  Electric servo motor
  - Curvic coupling : 2piece  $\hat{=}$  3piece with non lifting action
- Zero coolant leakage with improved covers



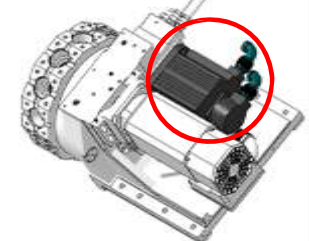
New turret



Curvic coupl. / 3piece



Servo Motor



[DIMF]  
Fire nozzle(brass)



## 6 inch chuck size, Compact, LM guideway, Milling



All axes with roller  
LM guideway



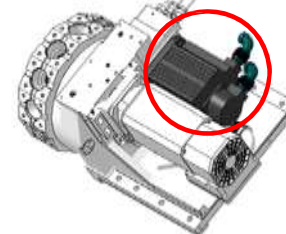
- New max. rotary tool speed 10000r/min, launching in 2015
- More productivity & stability with new turret!
  - Hydraulic indexing motor  $\hat{=}$  Electric servo motor
  - Air + oil lubrication and cooling
- All axes with roller LM guideway

New max. rotary tool  
speed 10000r/min,  
launching in 2015

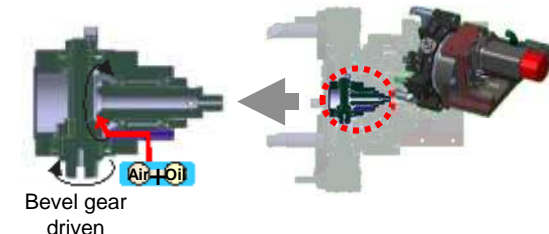


New turret under mass production

Servo Motor



Air + oil lubrication and cooling



Lynx 220LSYC x 2

Mass production

6 inch chuck size, Compact, LM guideway, Milling,  
Y axis and Sub-spindle

[DIMF]  
Bicycle parts

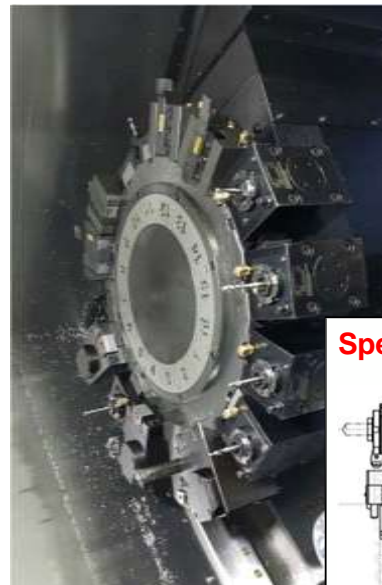


- New 16 station turret / BMT45P, launching in 2015
- Siemens 828D available

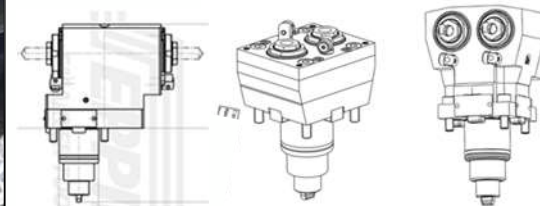
Siemens 828D



• New 16 station turret, launching in 2015



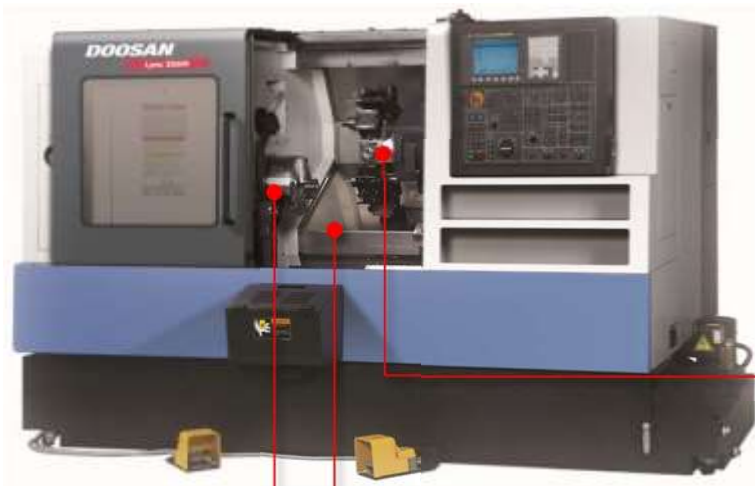
Special double type milling tool holders



[DIMF]  
Worm shaft



## 10 inch chuck size, Compact, LM guideway

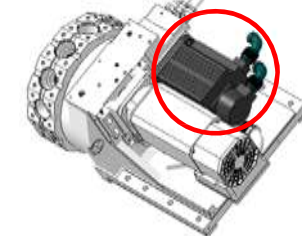


- **High power spindle 18.5/15kW(15min/Con.)**
- **More productivity & stability with new turret!**
  - Hydraulic indexing motor Æ Electric servo motor
  - Air + oil lubrication and cooling for Lynx 300M
- **All axes with roller LM guideway**

• New turret under mass production



Servo Motor

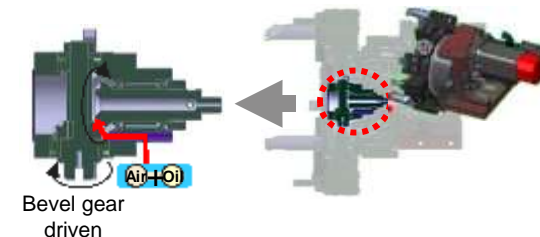


• All axes with roller LM guideway

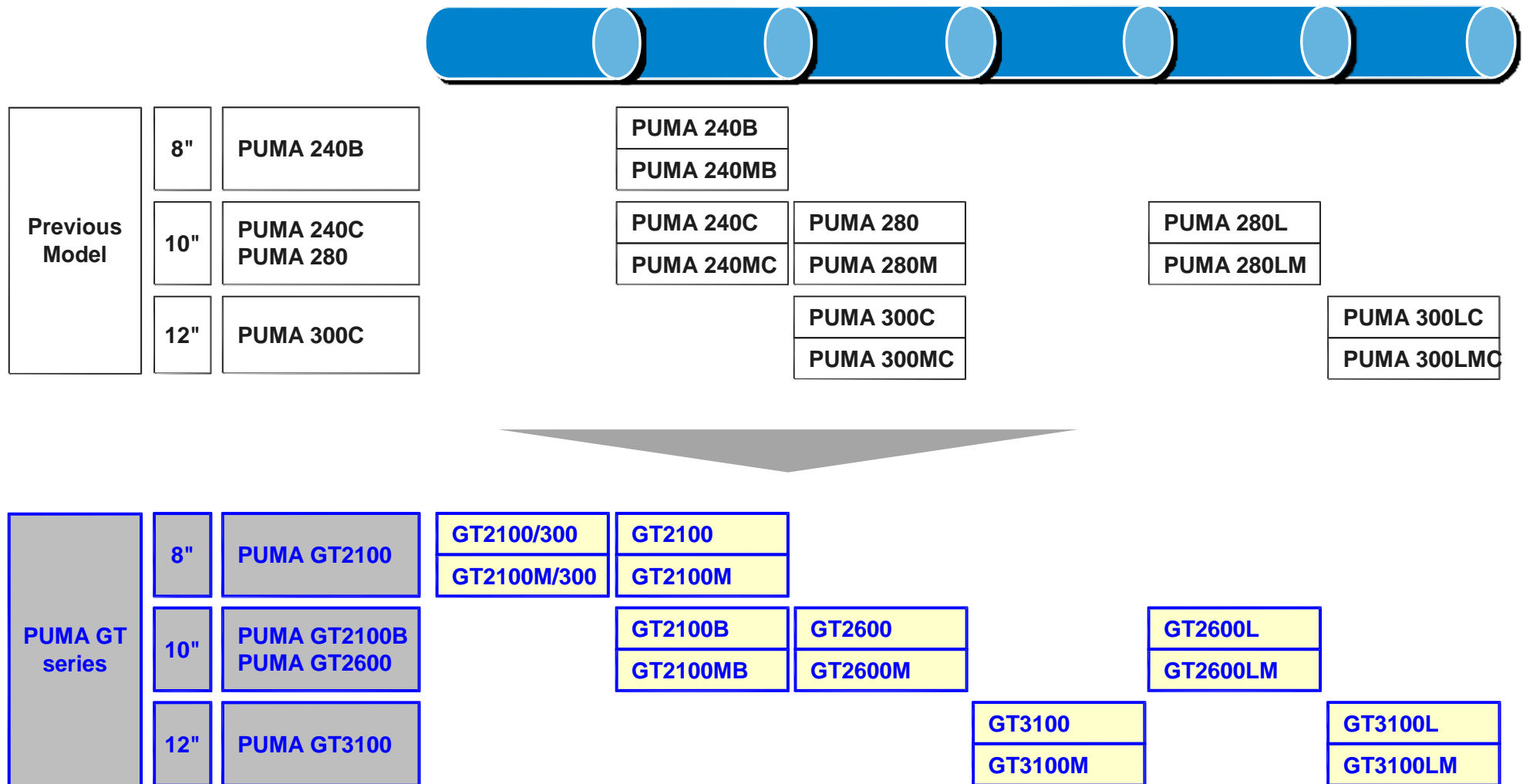


• High power spindle 18.5/15kW(15min/Con.)

Air + oil lubrication and cooling / Milling

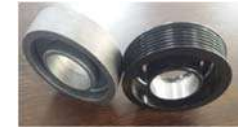


# PUMA GT series line-up





[DIMF]  
Timing pulley



## Compact Turning Center with 8 inch chuck!

PUMA GT2100/300 is compact Turning Center based on PUMA GT2100 and suitable for machining flange type short workpiece

PUMA GT2100/300  
PUMA GT2100M/300

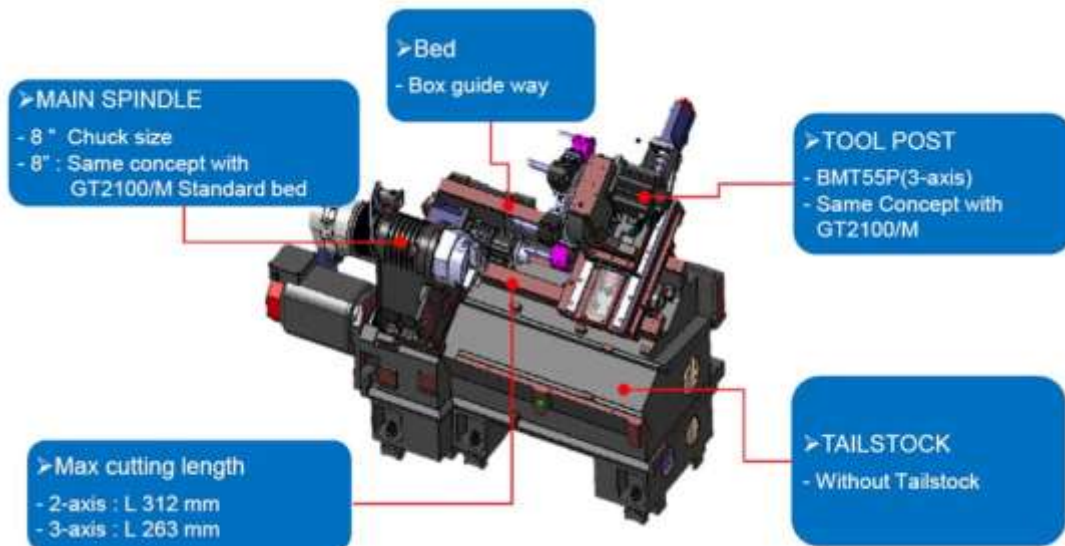


• The length of PUMA GT2100/300 is 655mm (25.8inch) shorter than PUMA GT2100

- PUMA GT2100/M : 2940mm (115.7inch)
- PUMA GT2100(M)/300 : 2285mm (90.0inch)

• Target customer who wants flange parts machining for automotive

- Box Guide-way useful for interrupted cutting
- Without Tailstock





# PUMA GT2100

Mass Production

## Global Standard 8/10" chuck Turning Center

PUMA GT2100 is a Global Standard Turning Center created with DOOSAN's vast experience and technical prowess to become the world's leading turning center on the market.

[DIMF]  
Hydraulic cylinder



PUMA 240B/C/MB/MC



• Higher productivity & more convenience by  
DOOSAN CNC D300 from Aug. 2015

PUMA GT2100/B/M/MB



• DOOSAN CNC D300 / PUMA GT2100

- High power spindle motor & X/Z axis motor
- Part program 1GB(1000MB)
- 12.1 inch color LCD



## Global Standard 10" chuck size Turning Center

PUMA GT2600 is a Global Standard Turning Center created with DOOSAN's vast experience and technical prowess to become the world's leading turning center on the market.

[DIMF]  
Oil cylinder



PUMA 280/L/M/LM



PUMA GT2600/L/M/LM



- New Generation Global Standard 10" chuck size Turning Center with 2axis or Milling
  - PUMA GT2600 : 10" chuck size New series that is the upgraded model of PUMA 280 series

## Global Standard 12" chuck size Turning Center

PUMA GT3100 is a Global Standard Turning Center created with DOOSAN's vast experience and technical prowess to become the world's leading turning center on the market.

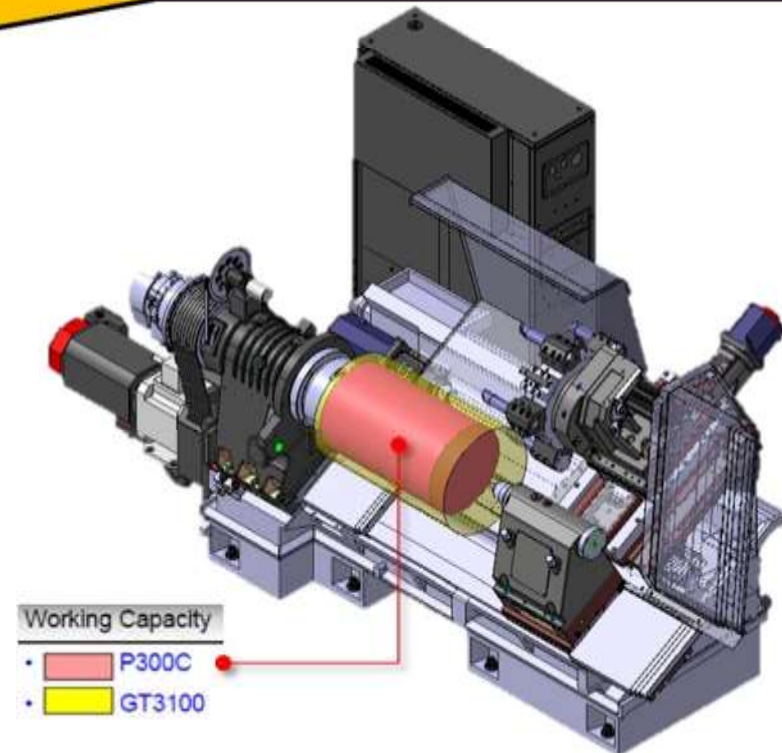


PUMA 300C/LC/MC/LMC



- PUMA GT3100, 12" chuck size New series that is **the upgraded model of PUMA 300 series** with 2axis or Milling
  - 2axis : **35/26/22 kW**(w/ BF G/B) > PUMA 300C/LC
  - Milling: 22/18.5 kW = PUMA 300MC/LMC

PUMA GT3100/L/M/LM



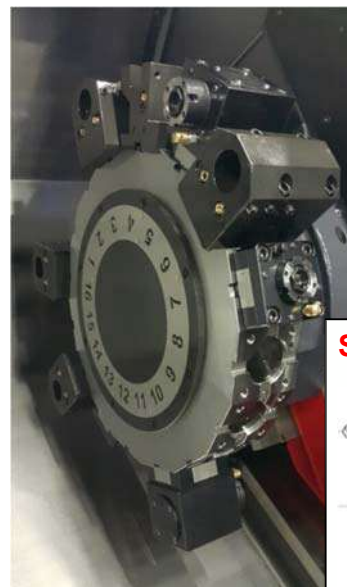
### 10 inch chuck size, Box guideway, Milling, Y axis and Sub-spindle

[DIMF]  
Support Housing/Coupling



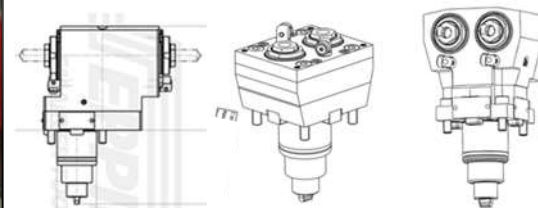
- New 16station turret / BMT55P, launching in 2015
- Improvement from mass production, May 2015

- New 16 station turret, launching in 2015



- Improvement from mass production, May 2015
  - Thermal Compensation Function with 5 Sensors
  - C axis Accuracy Improvement without pitch error compensation
  - Higher Productivity reduced non-cutting time

Special double type milling tool holders



### 12 inch chuck size, Box guideway, Milling, Y axis

[DIMF]  
Shaft

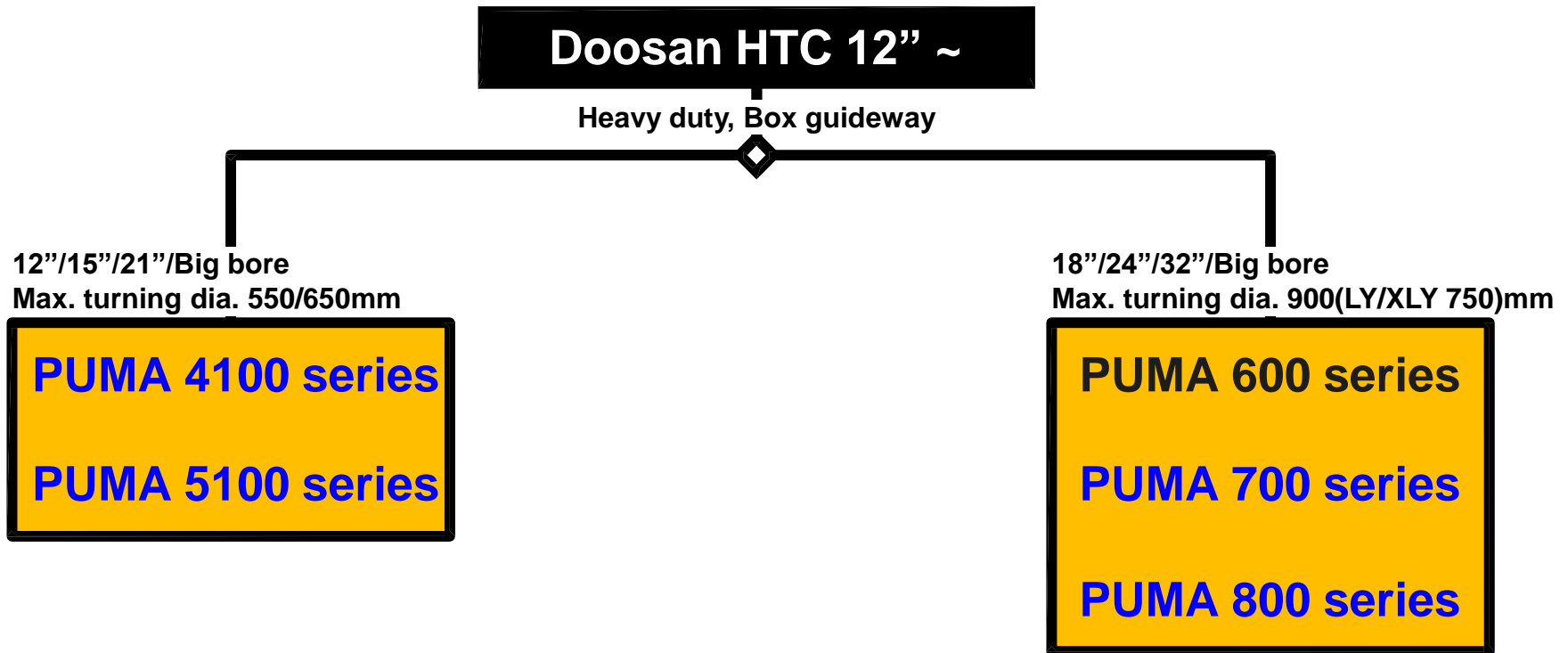


•Improvement from mass production, May 2015

- Improvement from mass production, May 2015
  - Thermal Compensation Function with 5 Sensors
  - C axis Accuracy Improvement without pitch error compensation
  - Higher Productivity reduced non-cutting time

## Medium / Large size HTC

Concept...





# PUMA 4100LMB, PUMA 5100LMB/LC, PUMA 5100LYB

## Heavy duty & high performance Turning Center

PUMA 4100/5100 series mainly focus its capacity on heavy duty cutting, created by DOOSAN who is one of the most powerful machine tool maker of global market.

PUMA 400/480



PUMA 4100/5100



● PUMA 4100: 22/18.5kW & 26/22kW Ì 35/26/22 k W

PUMA 5100LY



● Siemens 840D  
w/ 15" color LCD  
available



### Mass Production

[DIMF]

Tubing hanger / Tubing flange



Joint pipe / Hammer bits adapter



- New Generation 12", 15", 21" chuck size Heavy Duty Turning Center with 2axis, Milling & Y axis Milling
  - PUMA 4100 : 12"/15"/21" chuck size New series that is the upgraded model of PUMA 400 series
  - PUMA 5100 : 15"/21" chuck size & Big Bore Cylinder Model New series that is the upgraded model of PUMA 480 series

# PUMA 4100/5100 series line-up

Chuck	Group	Max. turn	Spindle bore	Bed	2-axis	M		Chuck	Group	Max. turn	Spindle bore	Bed	2-axis	M	Y	
12"	PUMA 400 18 model	Φ550	Φ102	L=1100	P400A	P400MA	P400 base	12"	PUMA 4100 18 model	Φ550	Φ115	L=1100	P4100A	P4100MA	• Upgrade 12" Model • STD./LONG BED: P4100 • XL BED : Review After Development	
				L=2200	P400LA	P400LMA						L=2200	P4100LA	P4100LMA		
				L=3200	P400XLA	P400XLMA						L=3200	P400XLA	P400XLMA		
15"			Φ132	L=1100	P400B	P400MB		15"			Φ132	L=1100	P4100B	P4100MB		
				L=2200	P400LB	P400LMB						L=2200	P4100LB	P4100LMB		
				L=3200	P400XLB	P400XLMB						L=3200	P400XLB	P400XLMB		
21"			Φ181	L=1100	P400C	P400MC		21"			Φ181	L=1100	P4100C	P4100MC		
				L=2200	P400LC	P400LMC						L=2200	P4100LC	P4100LMC		
				L=3200	P400XLC	P400XLMC						L=3200	P400XLC	P400XLMC		
																• Add 15" Model • Add "Y" Model • XL BED : Review After Development
21"	PUMA 480 9 model	Φ650	Φ181	L=1100	P480	P480M	P480 base	15"	PUMA 5100 15 Model	Φ650	Φ132	L=1100	P5100A	P5100MA		
				L=2200	P480L	P480LM						L=2200	P5100LA	P5100LMA	P5100LYA	
				L=3200	P480XL	P480XLM						L=3200	P480XLB	P480XLMB		
			Φ275	L=1100	P480D	-		21"			Φ181	L=1100	P5100B	P5100MB		
				L=2200	P480LD	-						L=2200	P5100LB	P5100LMB	P5100LYB	
				L=3200	P480XLD	-						L=3200	P480XL	P480XLM		
no-chuck			Φ275	L=1100	P480D	-		no-chuck			Φ275	L=1100	P5100C	-		
				L=2200	P480LD	-						L=2200	P5100LC	-	P5100LYC	
				L=3200	P480XLD	-						L=3200	P480XLD	-		

# PUMA 700LM, PUMA 700XLY, PUMA 800LB

Mass Production

## Heavy duty & high performance Turning Center

PUMA 600/700/800 series mainly focus its capacity on heavy duty cutting, created by DOOSAN who is one of the most powerful machine tool maker of global market.

PUMA 800B/LB



PUMA 700LM



PUMA 700XLY



[DIMF]  
Spool body



Piston rod



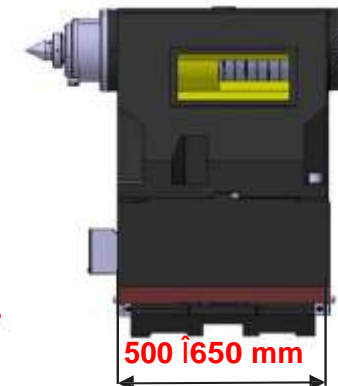
Pipe



- All models improved tail stock with partial reinforcement from May 2015



- XL models expanded of outward appearance in the direction of Z-axis from May 2015



# Multi-tasking HTC

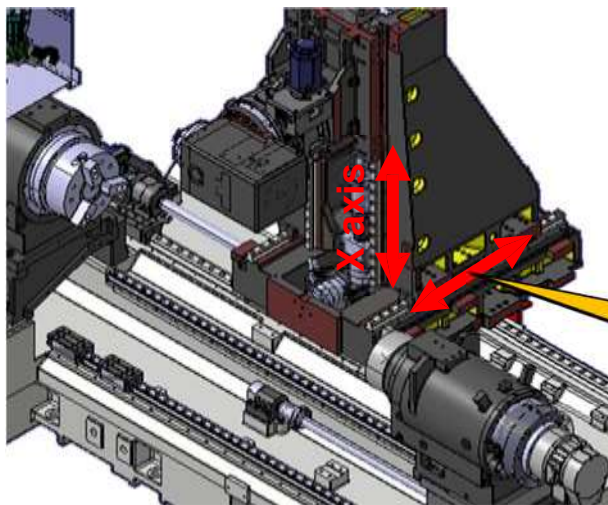
Concept...

## Doosan Multi tasking HTC

High performance  
Orthogonal Y axis

### PUMA SMX series

PUMA SMX2600  
PUMA SMX3100

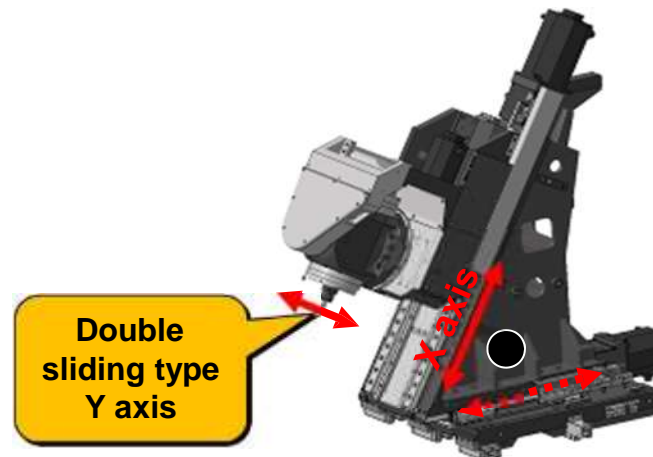


Orthogonal  
Y axis

High productivity Double  
sliding type Y axis Lower  
turret

### PUMA MX series

PUMA MX1600  
PUMA MX2100  
PUMA MX2600  
PUMA MX3100



Double  
sliding type  
Y axis



# PUMA SMX2600S, PUMA SMX 3100S

Mass production

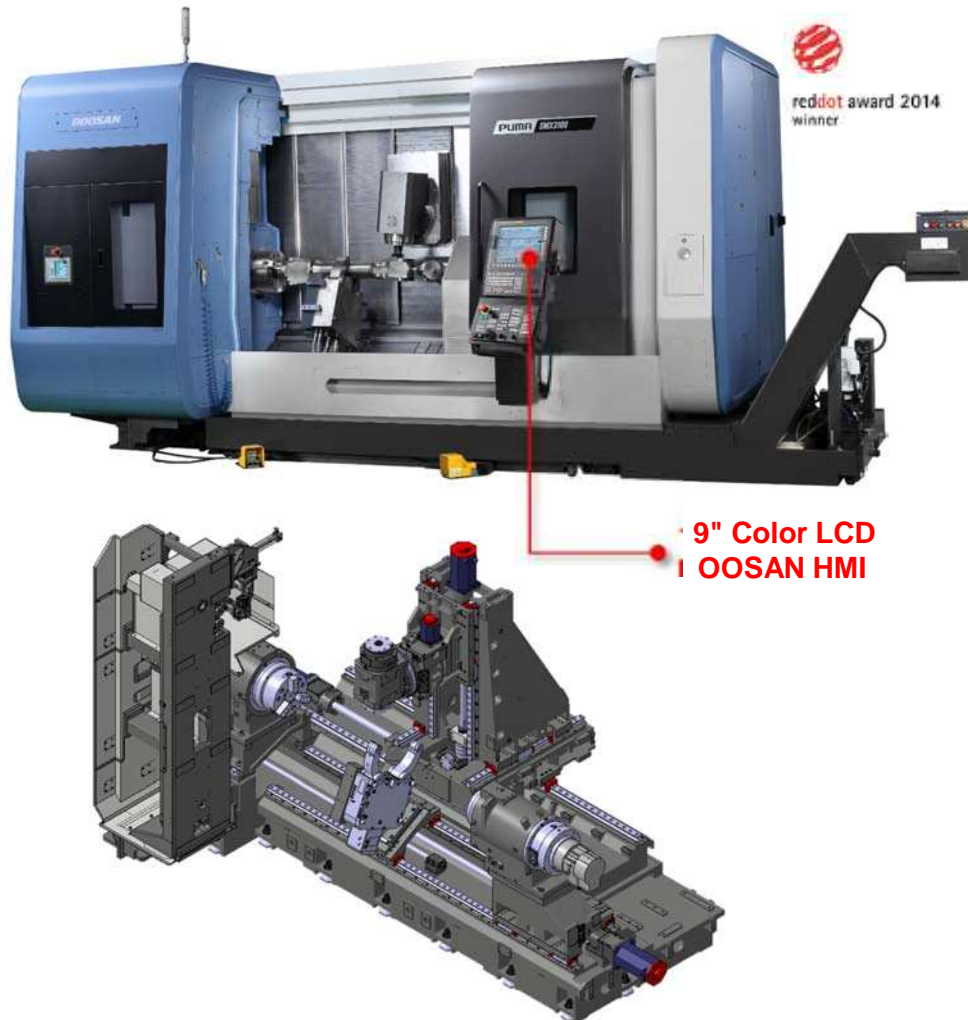
[DIMF]

Hammer bit / Screw



## New Generation! New Design! New Structure!

PUMA SMX series are easy and convenient multi-tasking machine with X/Y-axis orthogonal structure and ergonomic design



- New Generation and orthogonal X-Y axis structure of Multi-tasking machine!
  - PUMA SMX2600 : 10" chuck size  
PUMA MX2600/S model is replaced with PUMA SMX2600/S
  - PUMA SMX3100 : 12" chuck size  
PUMA MX3100/S model is replaced with PUMA SMX3100/S

## Compact Multi-tasking machine with 6 inch chuck!

PUMA MX1600ST/735 minimized machine foundation(decreased 500mm length) for the customer who need it to machine small size parts for medical

[DIMF]  
Control knob



PUMA MX1600ST/735



PUMA MX1600ST  
[Z 935mm(36.8inch)]



### • Compact Machine Length

- PUMA MX1600ST : 3800mm(149.6inch)
- PUMA MX1600ST/735 : **3300mm(129.9inch)**

### • Z-axis Travel

- PUMA MX1600ST : 935mm(36.8inch)
- PUMA MX1600ST/735 : **735mm(28.9inch)**



# Twin turret HTC

Concept...

## Doosan Twin turret HTC

2 spindle + 2 turret

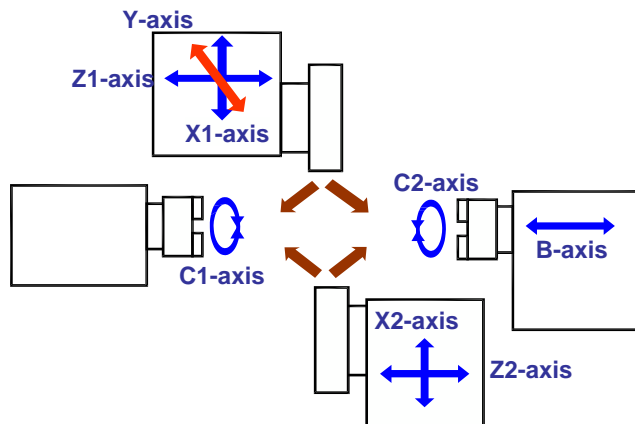
### PUMA TT series

PUMA TT1500  
PUMA TT1800  
PUMA TT2000  
PUMA TT2500

1 spindle + 1 tail-stock + 2 turret

### PUMA TL series

PUMA TT2000  
PUMA TT2500



# PUMA TT1800SY x 2

Mass production

## 8 inch chuck size Twin turret HTC

[DIMF] Nozzle  
/T valve



### Higher Accuracy

- Applied Low friction Ball Screw to minimize thermal displacement of all axes
- Roller type LMG on Z/A axes provide high accuracy & high rigidity
- New Tool Post for Rigidity & Low heat generation

Siemens 840D with  
19inch color LCD  
available



### Higher Productivity up

- Shortened cycle time
- Optimized PMC Ladder software and Acc./Dec. time
- Concurrent execution of Part program using the RTM Function(Opt.)
- Improved spindle response characteristic using FSSB (Fanuc serial servo Bus) Link

Cycle time reduction 5% down: 32m 40s  $\hat{=}$  31m 10s



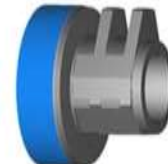
- Actuator (Aircraft parts)
- Steel (SM45C)
- / Ø100 x 75mm
- 18 tools



• Workpiece  
Chuckling



• Turning  
• Grooving



• Face & End  
milling



• Drilling  
• Contour cutting

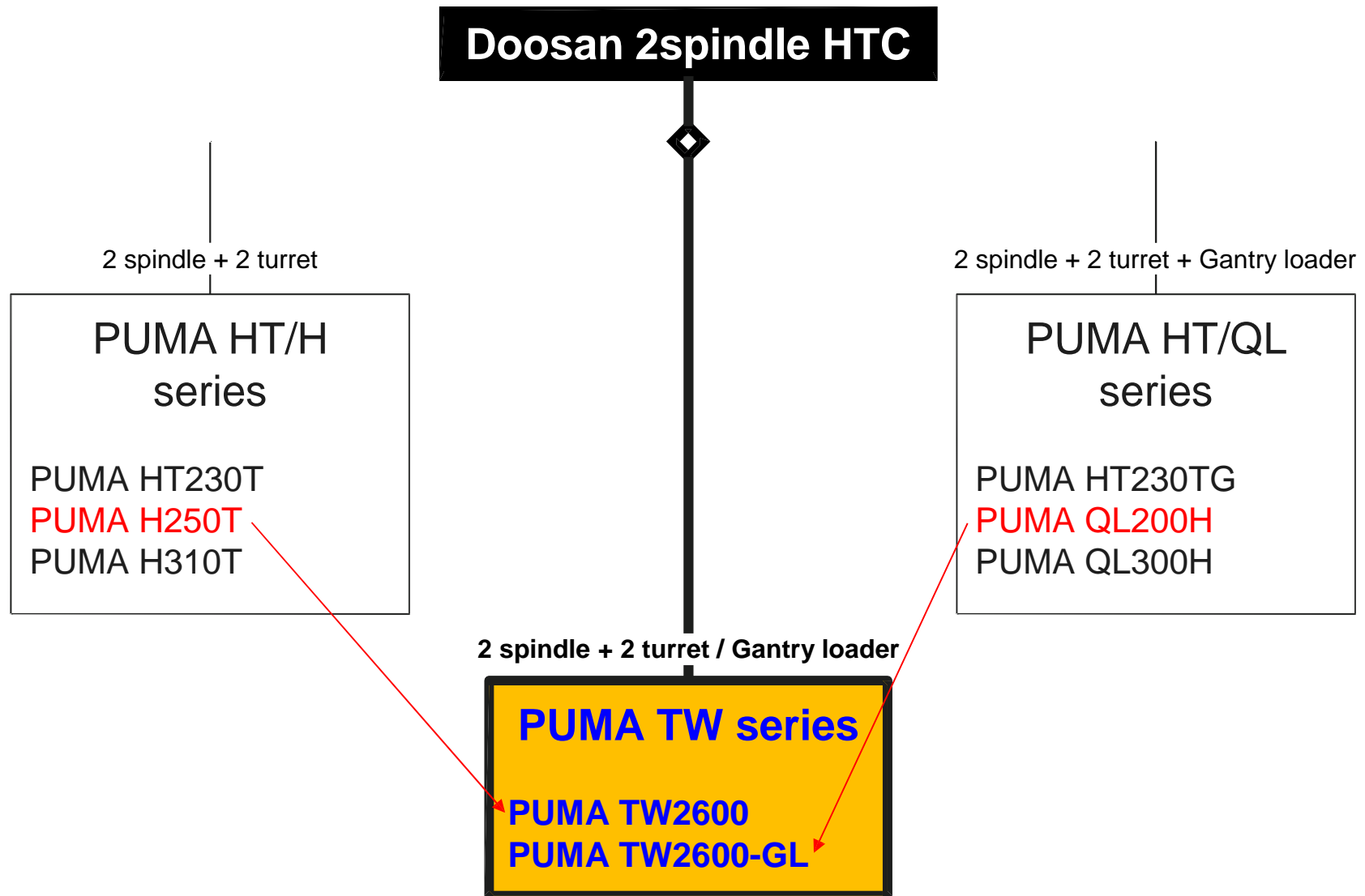
Work Transfer  
(Main  $\rightarrow$  Sub spd.)



• Turning  
• Contour cutting

# 2spindle HTC

Concept...



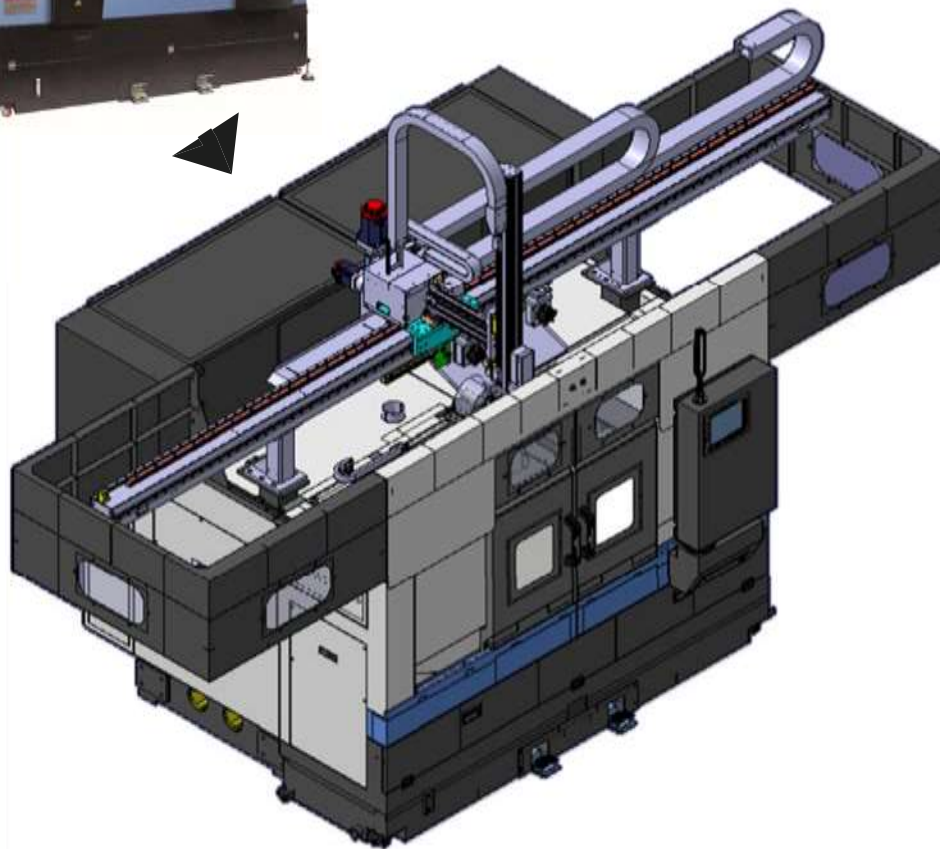
## New 10 inch chuck size **2SP-HTC** PUMA TW series

PUMA TW Series is New 2-Spindle-HTC Line up, attached upgraded Gantry Loader, maximized the productivity

[DIMF]  
Clutch / Disc plate

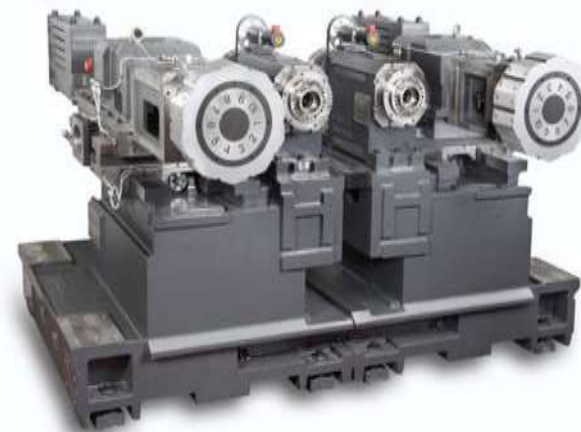


PUMA H250T  
PUMA QL200



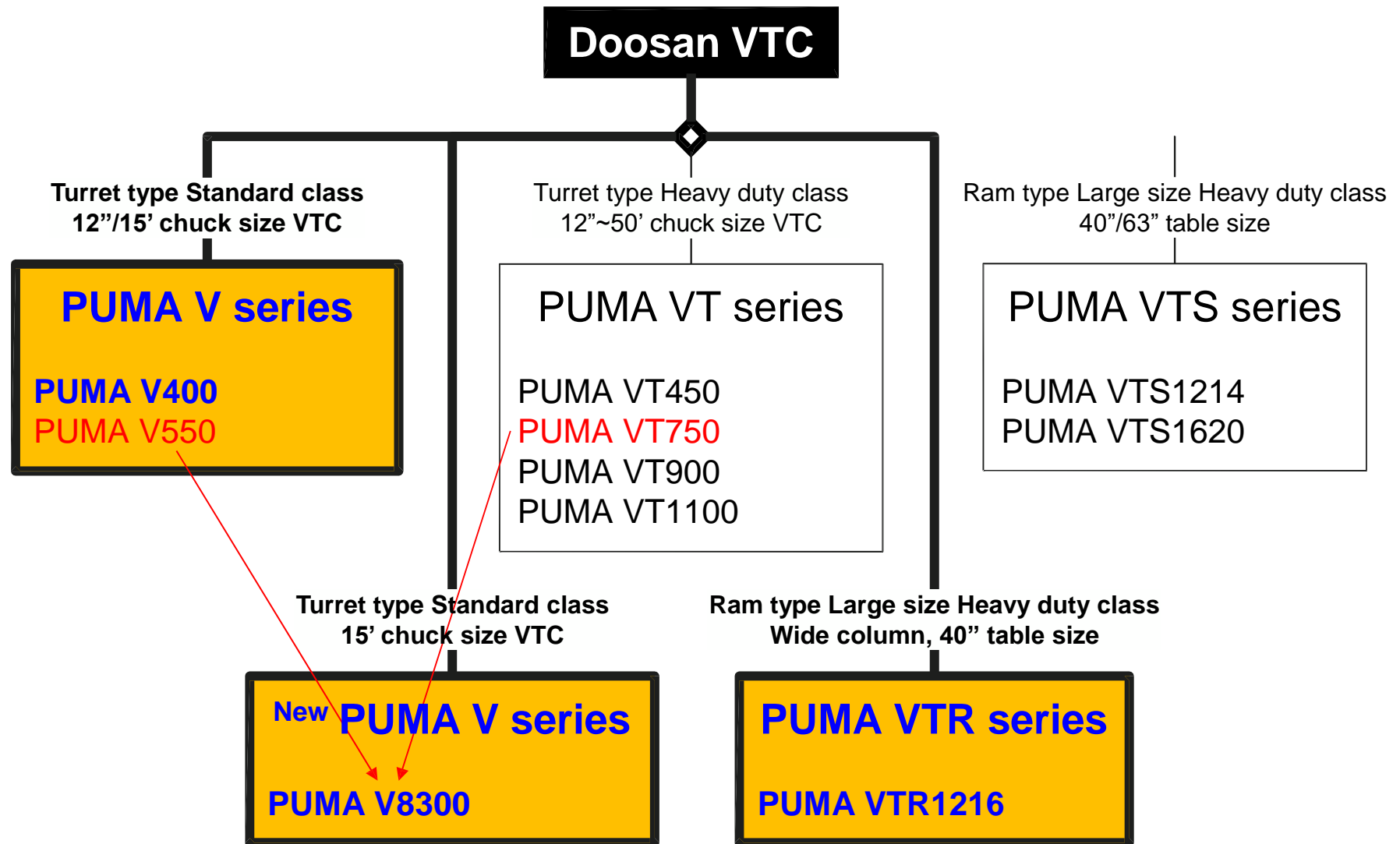
- Targeted Muratec MW200 productivity
- PUMA TW2600(-GL), 10" chuck size
- New series that is all new model of PUMA H250T/QL200H
- Std. : PUMA TW2600
- G/L : PUMA TW2600-GL

PUMA TW2600  
PUMA TW2600-GL



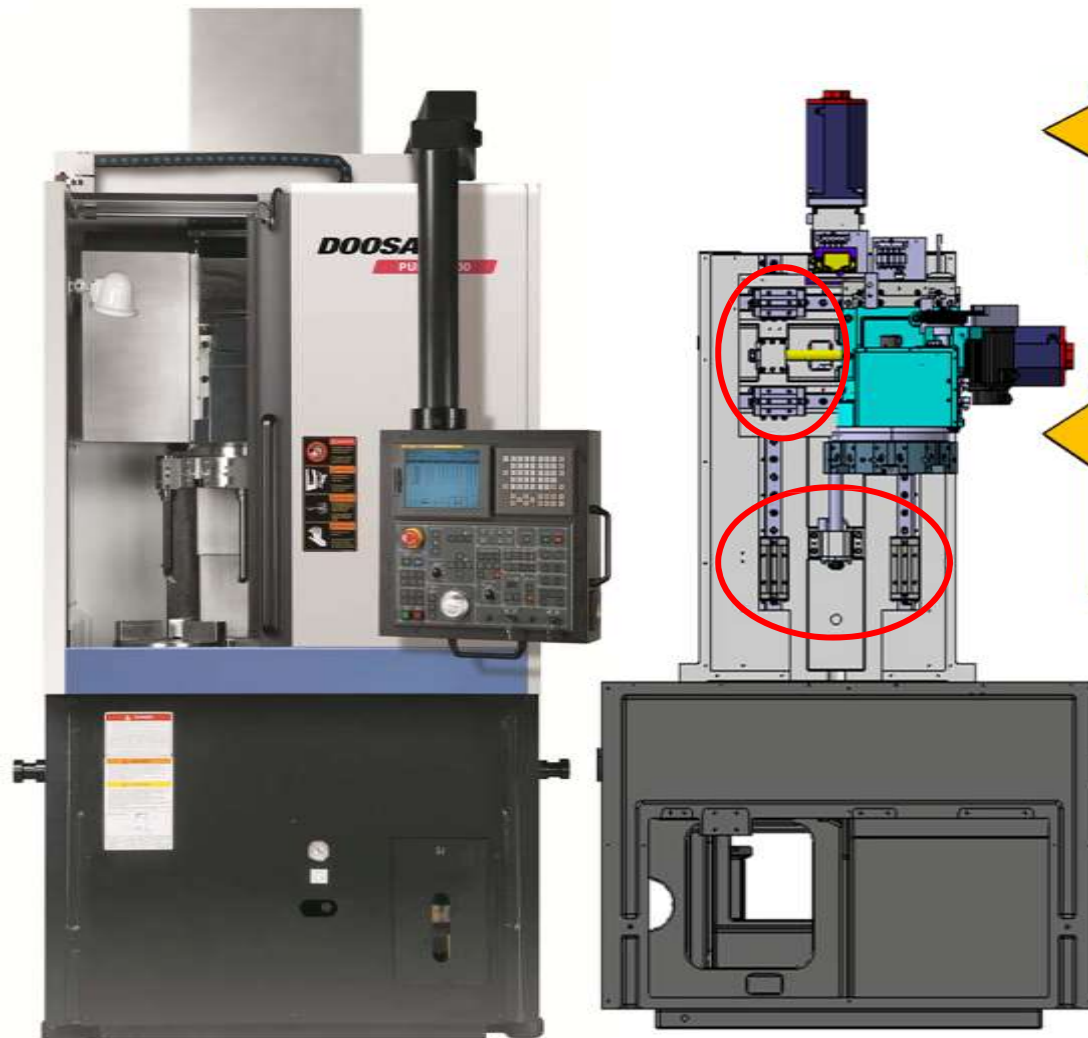
# VTC

## Concept...



[DIMF] Gantry  
loader between T  
4000 & PUMA  
V400P

## PUMA V400 with Roller LM Guide Way



• For mass production of automobile disk parts, high precision/high Rigidity Roller Type LM guide way is adopted additionally.

• Why LM Guide Way? (From VOce)  
1) It is possible to increase to cycle time  
- Increase rapid traverse rate  
- Increase acceleration/deceleration  
2) Easy maintenance



## PUMA V8300M <sup>New</sup>

- PUMA V8300R/MR: '15. Sep. Launching, '16. Feb. Mass production
- PUMA V8300L/ML: '16. Mar. Launching, '16. Aug. Mass production

## New vertical turning center with 15 inch chuck

The largest specification of Max. Turning diameter, Max. Swing on the same level, New model applied the latest technology, maximized specifications, productivity, convenience and so on

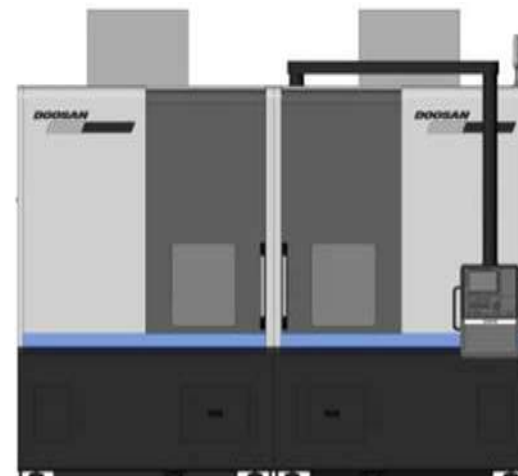
[DIMF]  
Demo sample



PUMA V550/M/-2SP  
PUMA VT750/M/-2SP

- PUMA V8300, 15" chuck size New series that is **all new model of PUMA V550/VT750 series** with 2axis or Milling
  - Max. Turning dia. :  $\varnothing 830\text{mm}$ (32.7inch)
  - Servo driven turret
  - Auto door Speed upgrade : 6sec  $\rightarrow$  4sec
  - Large capa. coolant tank : 195ℓ  $\rightarrow$  300ℓ
  - Upgrade chip disposal

PUMA V8300/M

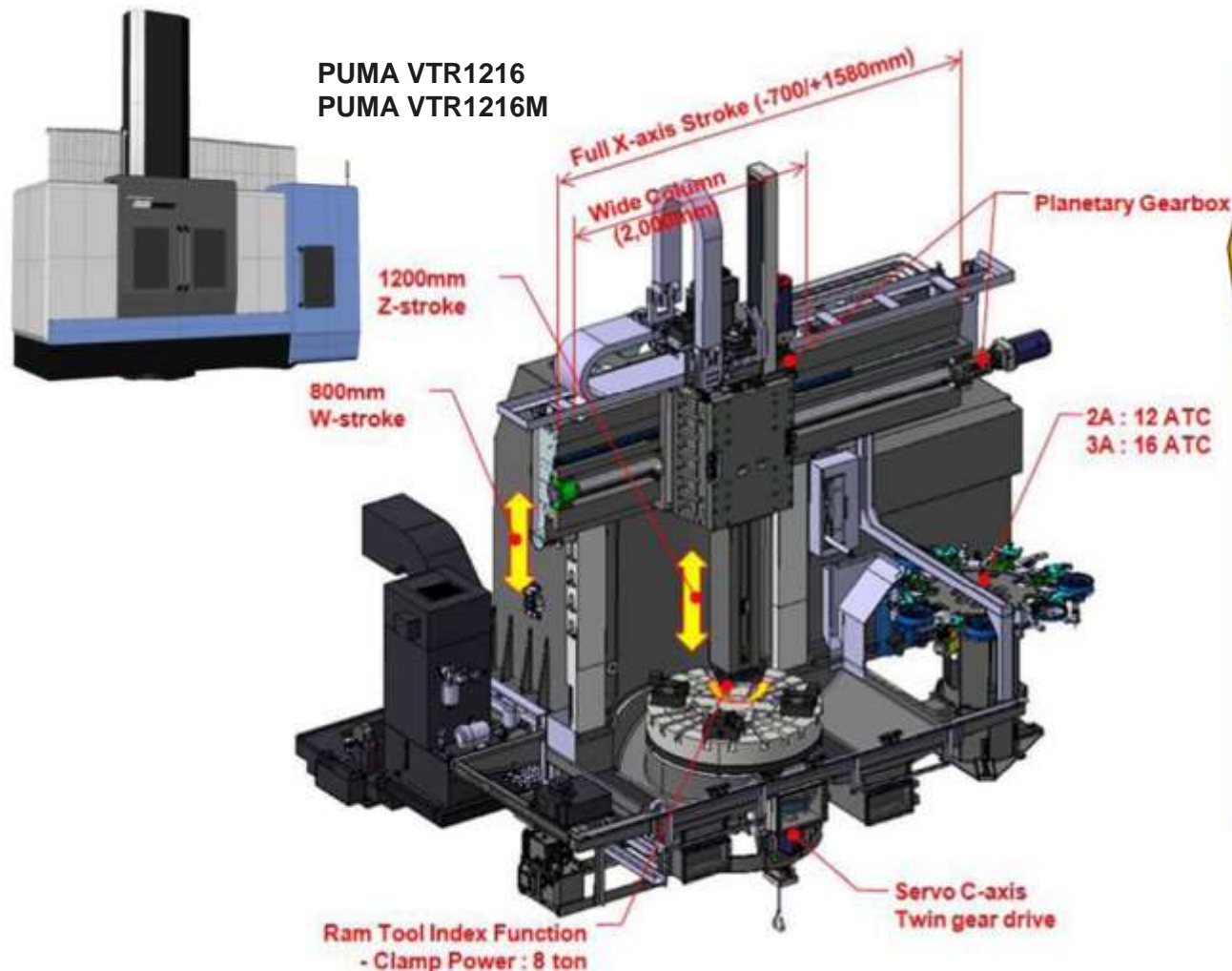


PUMA V8300/M-2SP

## Large size Vertical Turning Center **PUMA VTR** series

PUMA VTR series , Doosan's New Large VTC Line up provides wide machining space & powerful machining performance of rings & valve parts than competitors

[DIMF]  
Driving housing



- Table size 1250mm (49.2inch), Max. Turn. dia. 1600mm (63inch)
- Full X/Z-axis Travel
  - . Single wide column
  - . One setting inner / outer machining & measuring
- 8 ton tool clamp for powerful machining
  - . = Europe MTB,
  - . > You-ji 3ton
- Tool length 200mm (7.9inch) in ATC
  - . > PUMA VTS: 50mm (2.0inch)

# Swiss turn type TC

Concept...

## Doosan Swiss turn type TC

### PUMA ST series

Tool Type	Suffix	Specifications
Gang	GS	Standard
	G	Premium class
Turret	GX	Multi Axis
	GN	Non Guide Bush
	TS	Standard
	T	Premium class
	TX	Multi Axis
	TN	Non Guide Bush

Bar working dia. 10/20/26/32/35mm

**PUMA ST10GS**  
**PUMA ST20GS**  
**PUMA ST26GS**  
**PUMA ST32GS**  
**PUMA ST35GS**

- HANWHA
- NEXTURN

Bar working dia. 20/32mm

**PUMA ST20G**  
**PUMA ST32G**

- CITIZEN
- STAR
- TSUGAMI

# PUMA ST10GS **New** / 20G / 26GS **New** / 32G / 35GS

**[PUMA ST10GS / 20G(Up) / 26GS]**  
 Launching: 2015 Jul. / May / Jan.  
 Mass Production: 2015 Dec. / Jul. / Jun.  
 Others under mass production

Optimal Solutions for the Future



**Swiss type Turning Center**



**Built-in type main/sub spindle**  
 (PUMA ST10GS with Belt driven sub spindle)



**Cross tool 5ea / standard**  
 || some models with 4 tools



**10.4" color LCD / standard**  
 || some models from Sep. 2015

## PUMA **ST series**

### Swiss type Turning Center

PUMA ST20G (Product release in May, 2015)



Max. Machining Diameter  
**ø20mm**

Max. Machining Diameter	ø20mm
Max. Spindle Speed	Main : 10000 r/min Sub : 8000 r/min
Number of cross tools	5ea
Synchronized guide bushing	Servo motor
NC	DANUC 3D

01

**NEW** PUMA ST10GS (Coming soon)



Max. Machining Diameter  
**ø10mm**

Max. Machining Diameter	ø10mm
Max. Spindle Speed	Main : 15000 r/min Sub : 10000 r/min
Number of cross tools	5ea
NC	DOOSAN-DANUC

02

**NEW** PUMA ST20GS  
**NEW** PUMA ST26GS (Product Release in January, 2015)

03



Max. Machining Diameter  
**ø20mm, ø26mm**

Max. Machining Diameter	ø20mm, ø26mm
Max. Spindle Speed	Main : 10000 r/min Sub : 8000 r/min
Number of cross tools	5ea
NC	DOOSAN-DANUC

PUMA ST32G

04



Max. Machining Diameter  
**ø32mm**

Max. Machining Diameter	ø32mm
Max. Spindle Speed	Main : 8000 r/min Sub : 8000 r/min
Number of cross tools	4 / 5ea
Synchronized guide bushing	Servo motor
NC	DANUC 3D

PUMA ST32GS, PUMA ST35GS

05



Max. Machining Diameter  
**ø32mm, ø35mm**

Max. Machining Diameter	ø32mm, ø35mm
Max. Spindle Speed	Main : 8000 r/min Sub : 8000 r/min
Number of cross tools	4 / 5ea
NC	DOOSAN-DANUC

# Table of Contents

## A. Turning Center

### **B. Machining Center**

1. T series
2. DNM II series
3. Mynx series
4. VC series
5. FM / NX II / VM series
6. DNM / VC / FM 5AX series
7. VCF series
8. HC II / HP II series
9. NHP / NHM / HM series
10. DHF 8000
11. DBC S / II series
12. BM / DCM series



T 4000, T 4000L

Mass production

[DIMF]

Gantry loader between T 4000 & PUMA V400P

Motor housing



## New Doosan Tapping Center #30

The T 4000/L delivers excellent productivity compared with competing models with the equivalent specifications by providing fast machining capabilities, feeding speed and tool exchange speed for the machining of components for the automotive and IT industries.

T 4000



T 4000L



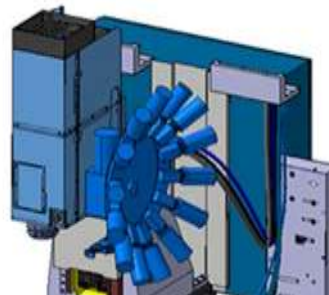
• New Generation Doosan Tapping center for high productivity through servo ATC, new spindle and zero leakage

- T 4000 : X-axis travel 500mm(19.7inch)
- T 4000L : X-axis travel 700mm(27.6inch)
- DOOSAN D300 & FANUC 0iM/31i

DOOSAN CNC D300 with 12.1" color LCD available

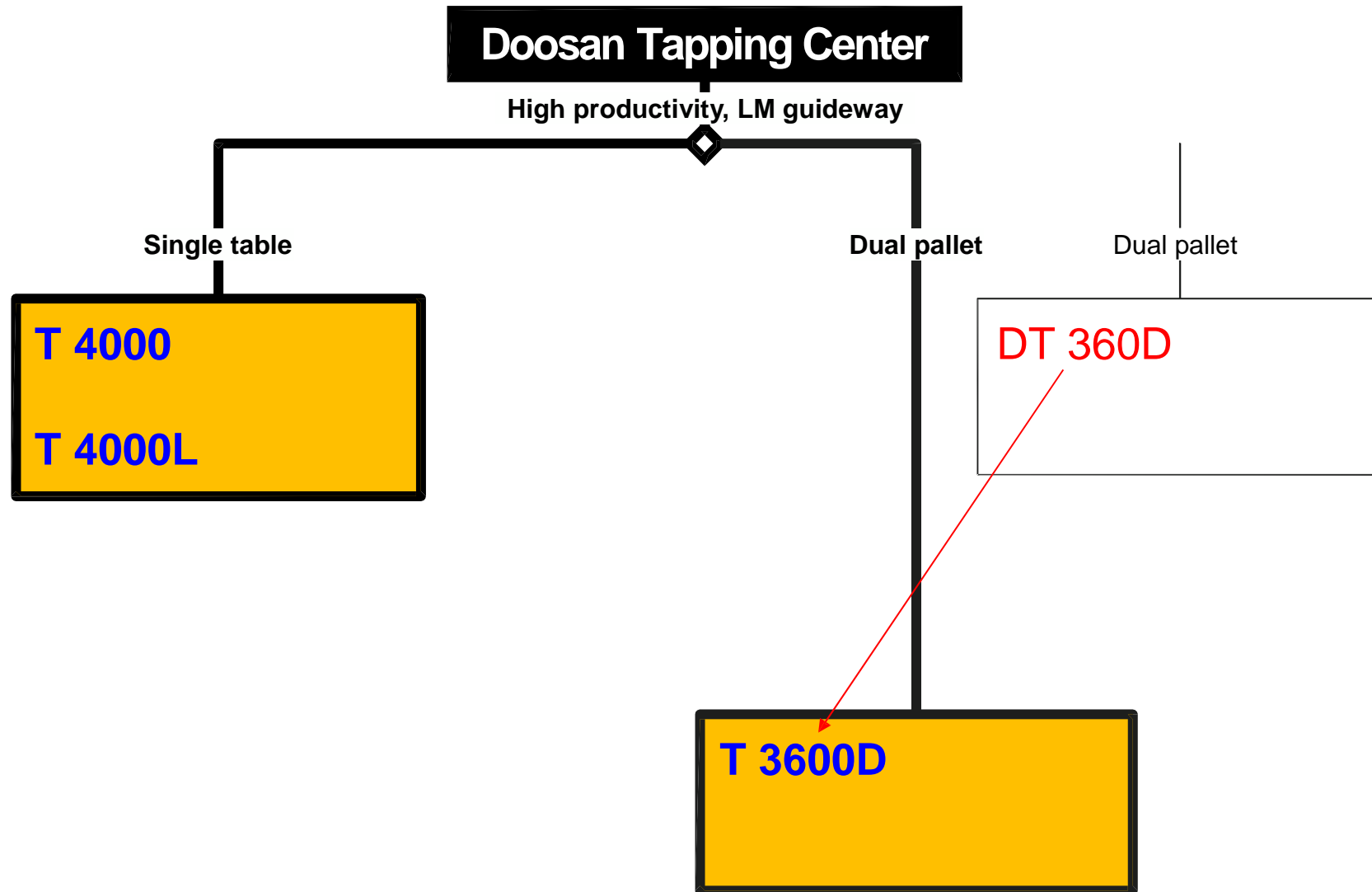
• AM ATC 14 tools available

• Max. spindle speed 24000r/min available



# Tapping Center

Concept...



T 3600D x 2

Launching : 2015 Jun.  
Mass Production : 2015 Nov.

## High Productivity and Quality Dual pallet VMC

New frame dual pallet tapping center & VMC with high speed APC & servo ATC applied to increase productivity & reliability to following market trend and it also have small footprint

[DIMF]  
Tap wheel/Phone case



DT 360D  
DT 360D/40

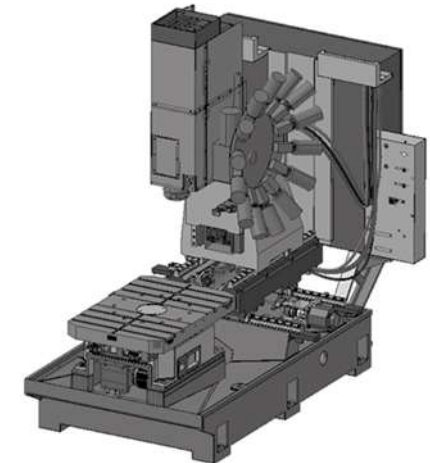


T 3600D  
VC 3600

- Tool taper #30/#40, Y-axis 360mm (14.2inch) dual pallet Tapping center
  - **All new** against current DT 360D
  - **Servo driven ATC(14T)** to increase productivity & reliability
  - **High speed APC** : 4s  $\hat{=}$  3s
  - **Smaller footprint** 10% shortened
  - **DOOSAN D300 & FANUC 0iMD**



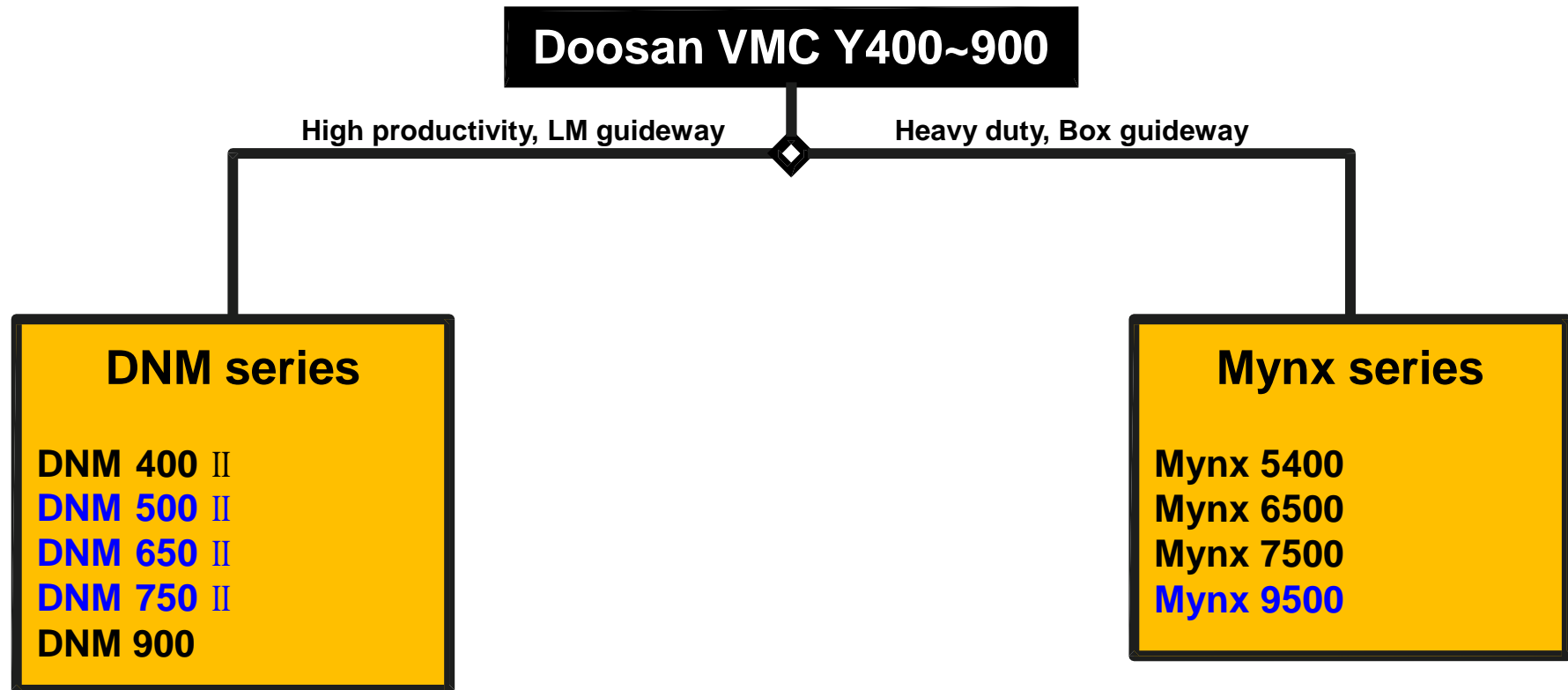
T 3600D w/ #30



VC 3600 w/ #40

# VMC Y400~900

Concept...



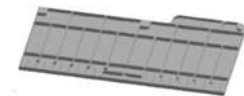
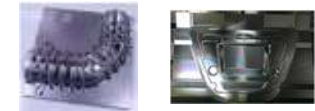
# DNM 500 II, DNM 650 II, DNM 750 II

Mass production

## High Productivity, High Efficiency Vertical Machining Center

DNM II series are available with a diversity of spindle specifications to meet various requirements. Roller LM guide enhances rigidity and extends service life. Utmost accuracy is achieved with direct coupled spindle structure as option

[DIMF]  
Hose tray / Audio cover /  
Rad cover



DNM 400 II



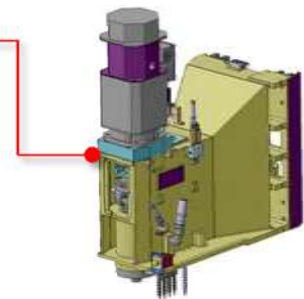
### • DNM II series

- Direct coupled 12kr/min as option for high reliability and accuracy
- Roller LM guideway as standard for more rigidity
- New OP & Fanuc 0iM, iTNC530, Siemens 840D for more convenience
- Smooth Surface Package(SSP) for better surface

DNM 500 II  
DNM 650 II



DNM 750 II  
DNM 750L II





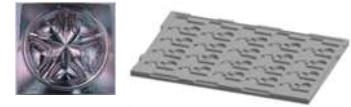
**DNM 650/50 || New, DNM 750/50 || New**

- DNM 750(L)/50 II: Mass production
- DNM 500/50 II, DNM 650/50 II  
: Launching in Jun. 2015  
: Mass production from Nov. 2015

## DNM II series with tool taper #50

DNM II series with Roller LMG applied with tool taper # 50 & belt driven spindle

[DIMF]  
Wheel / Tray



- DNM #50 II with Belt driven spindle
  - Std. 8000 r/min, Opt. 10000 r/min
  - Std. 24 tools, Opt. 30/40 tools
  - Other specifications same as DNM II series
  - Smooth Surface Package(SSP) for better surface

DNM 500/50 II  
DNM 650/50 II  
DNM 750/50 II  
DNM 750L/50 II

Features	Unit	DNM 500/50 II	DNM 650/50 II	DNM 750(L)/50 II
Driven type		Belt driven spindle		
Spindle taper		BT/DIN/CAT 50		
Max. spindle speed	r/min	8k [10k]		
Motor power	kW	15/11 [26/22]		
Max. Spindle torque	N.m	286.4 [198.5]		
No. of tool magazine	ea	24	24[30]	24[30/40]

## High Rigidity & Productivity Large **Mynx w/ Y950mm**

Powerful vertical machining center Mynx 9500 is built to world-class standards to assure world-class results. Powerful drives, heavy duty construction, and unsurpassed rigidity provide exceptional precision and years of trouble-free performance.

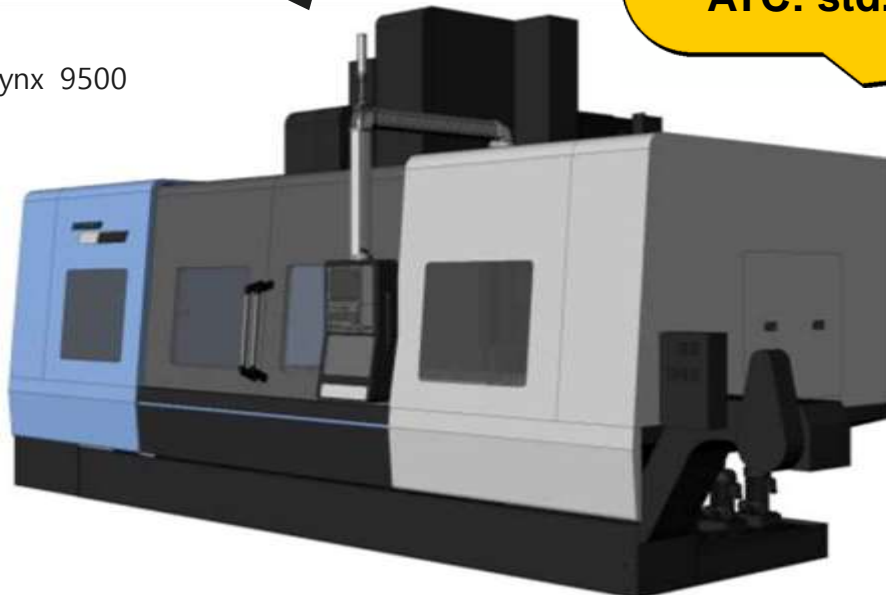
[DIMF]  
Heavy duty: Carbon steel



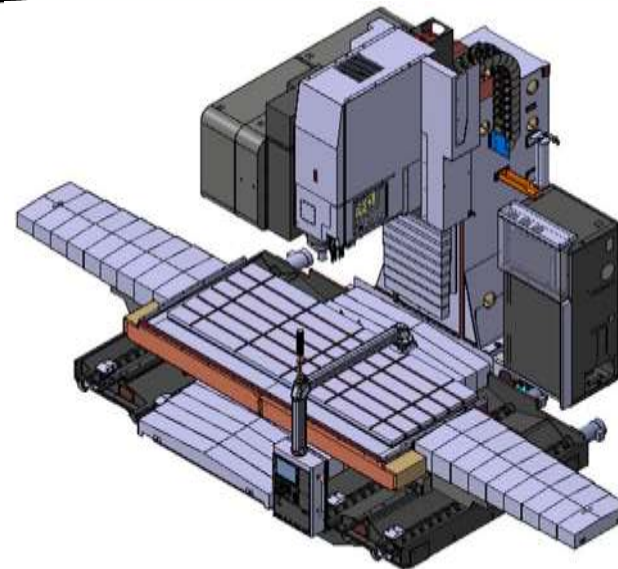
V 950



Mynx 9500

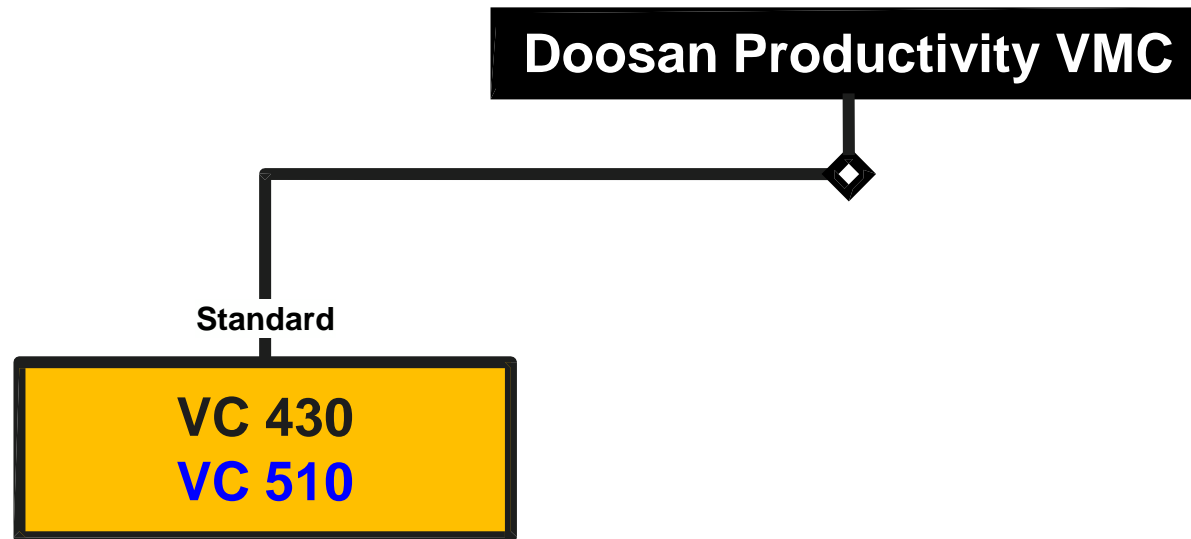


- **Mynx with #50 gear driven spindle and box guideway**
  - Travel (X/Y/Z): 2500/950/850mm (98.4/37.4/33.5inch)
  - Table: 2500 x 950 mm (98.4 x 37.4inch) / 3500 kg
  - Spindle
    - : std. Gear driven 6000 r/min, opt. Built-in 10000 r/min
    - : std. 22/18.5kW(452.5 N.m), opt. 26/22kW
  - ATC: std. 30T, opt. 40T



# Productivity VMC

Concept...



VC 510

Mass production

## High Productivity Vertical Machining Center

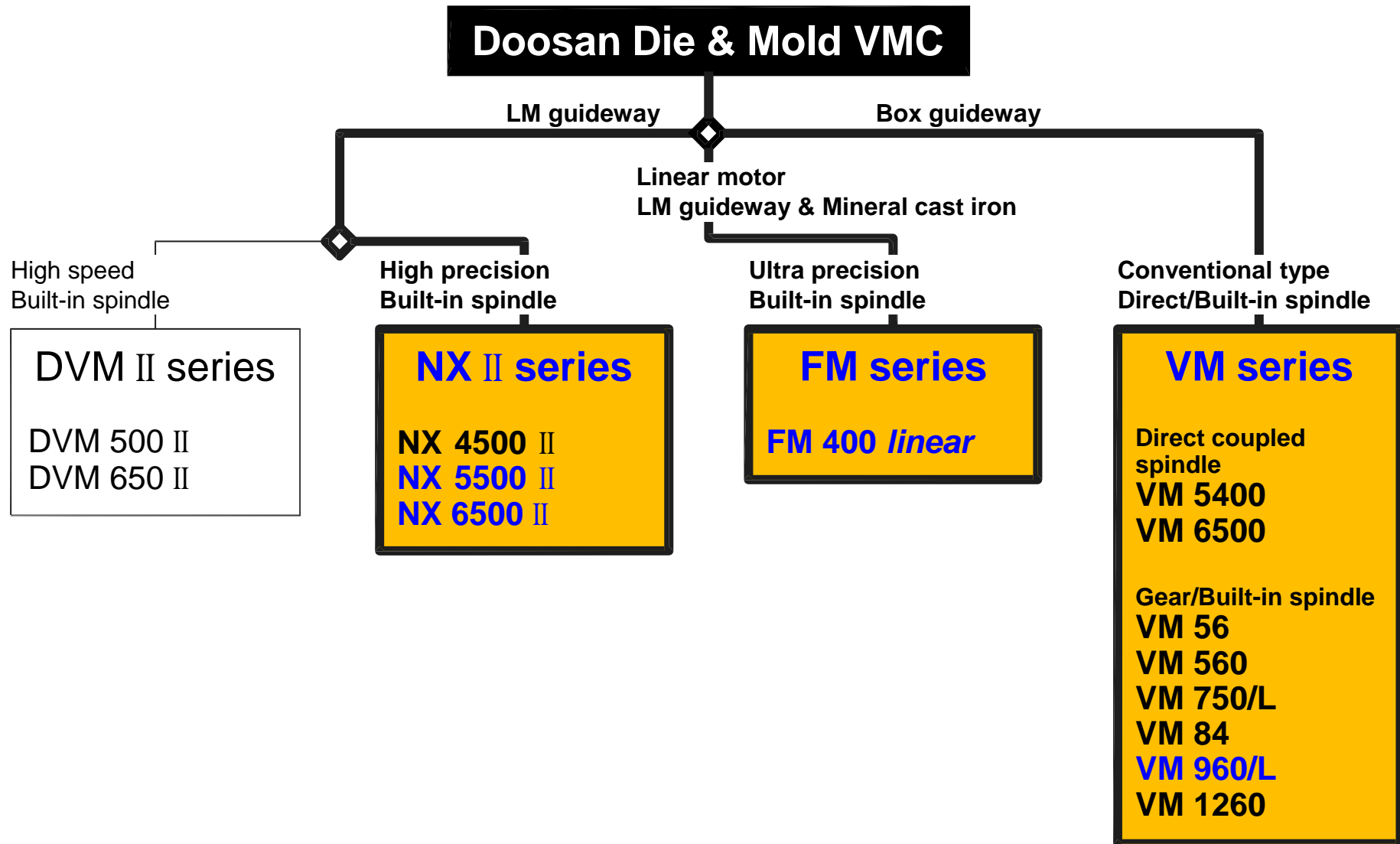
[DIMF]  
Knuckle



- **Direct coupled spindle, max. speed 14000r/min, launching & mass production in 2015**
- **Servo driven tool magazine 40 tools, launching & mass production in 2015**

# Die & Mold VMC

Concept...





**NX 5500 II, NX 6500 II**

**Mass production**

# High-Precision, High-Speed Die & Mold Vertical Machining Center

**[DIMF]**

**Tube connector / Dash board**



**NX 5500 II**



**NX 6500 II**



- High-speed built-in motor spindle, max. speed 20000r/min
- Fanuc 31i
- Heidenhain iTNC530 available



VM 960L

Mass production

[DIMF]

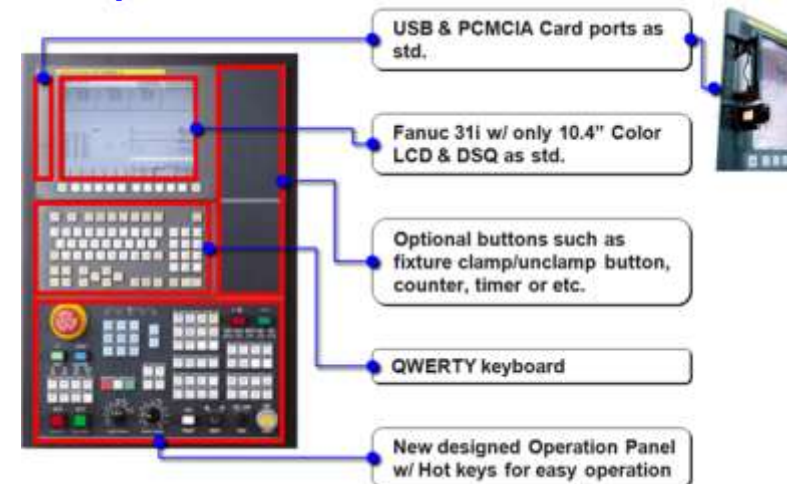
Crank shaft forging



## Heavy Duty, Die/Mold Vertical Machining Center



New Operation Panel for more convenience



# Super Precision & Speed Vertical Machining Center with 40000r/min & Linear Motor

[DIMF]  
Grill



## Major Features

- 3-axis FM 400 linear Machining Center enabling super-precision mold processing
- Innovation in mold machining
  - Direct machining of heat-treated materials
  - Molds can be finished without wire cutting or finishing
- Super high speed machining
  - Superior surface quality. All axes applied with linear motors for precision machining
  - Axes rapid traverse 80 m/min
  - Max. acceleration 2 g
  - Max spindle speed 40000 r/min
- Structure designed for precision machining
  - Long-term rigidity and stability secured with gantry structure
  - Superior stability achieved with a high damping bed
  - High rigidity feed system
  - Provided with thermal error compensation system



Built-in spindle  
40000r/min,  
HSK-E40

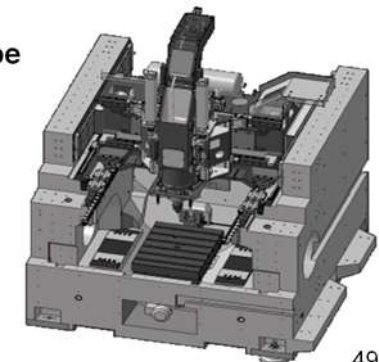


X/Y/Z axis with  
linear motor,  
rapid traverse  
80m/min & 2G



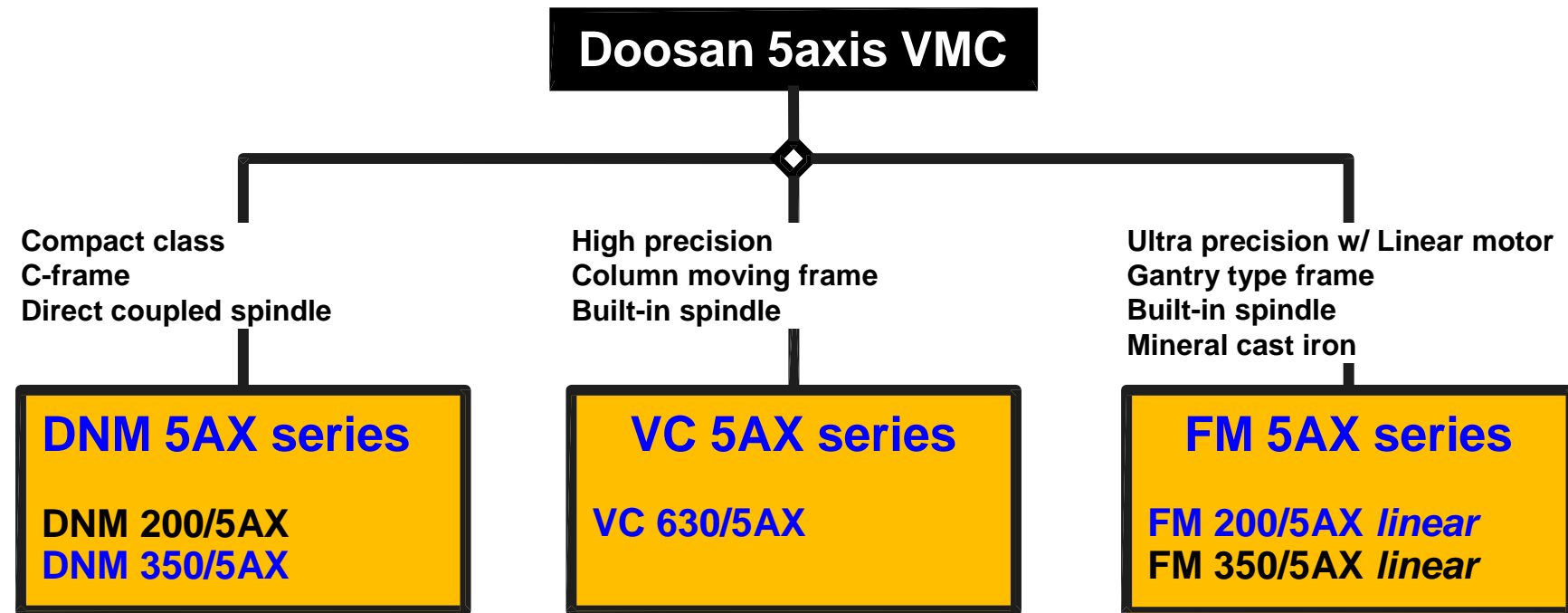
Heidenhain iTNC530  
with 19inch color LCD

Gantry type  
structure  
Mineral  
Cast iron



# 5axis VMC

Concept...



**DNM 200/5AX x 2, DNM 350/5AX**

**Mass production**

**[DIMF]**

**Ankle plate / Difusion  
block**



## Compact 5-axis(4+1axis) Vertical Machining Center

**DNM 200/5AX**



**DNM 350/5AX**



• **Compact 5-axis Vertical MC for Entry-level Customers with a Trunnion typed Rotary table.**

- **DNM 200/5AX :  $\Phi 200\text{mm}$  (7.9inch) Doosan Rotary Table based on DNM 400**
- **DNM 350/5AX :  $\Phi 350\text{mm}$  (13.8inch) Doosan Rotary Table based on DNM 650**





## VC 630/5AX x 4

Mass production

### Rotary table dia. $\Phi 630\text{mm}$ (24.8inch), Simultaneous 5-axis / 4+1-axis Vertical Machining

[DIMF]

EROWA system / Turbo  
pump / Medical part



- Column moving type VC 630/5AX with Trunnion type Rotary table
  - Doosan rotary table dia.  $\Phi 630\text{mm}$ (24.8inch)
  - Spindle speed 12000, 20000, 30000kr/min
  - Simultaneous 5axis  
: Heidenhain iTNC530, Fanuc 31iB5, Siemens 840D
  - 4+1axis: Fanuc 0iM

Pallet Automation system



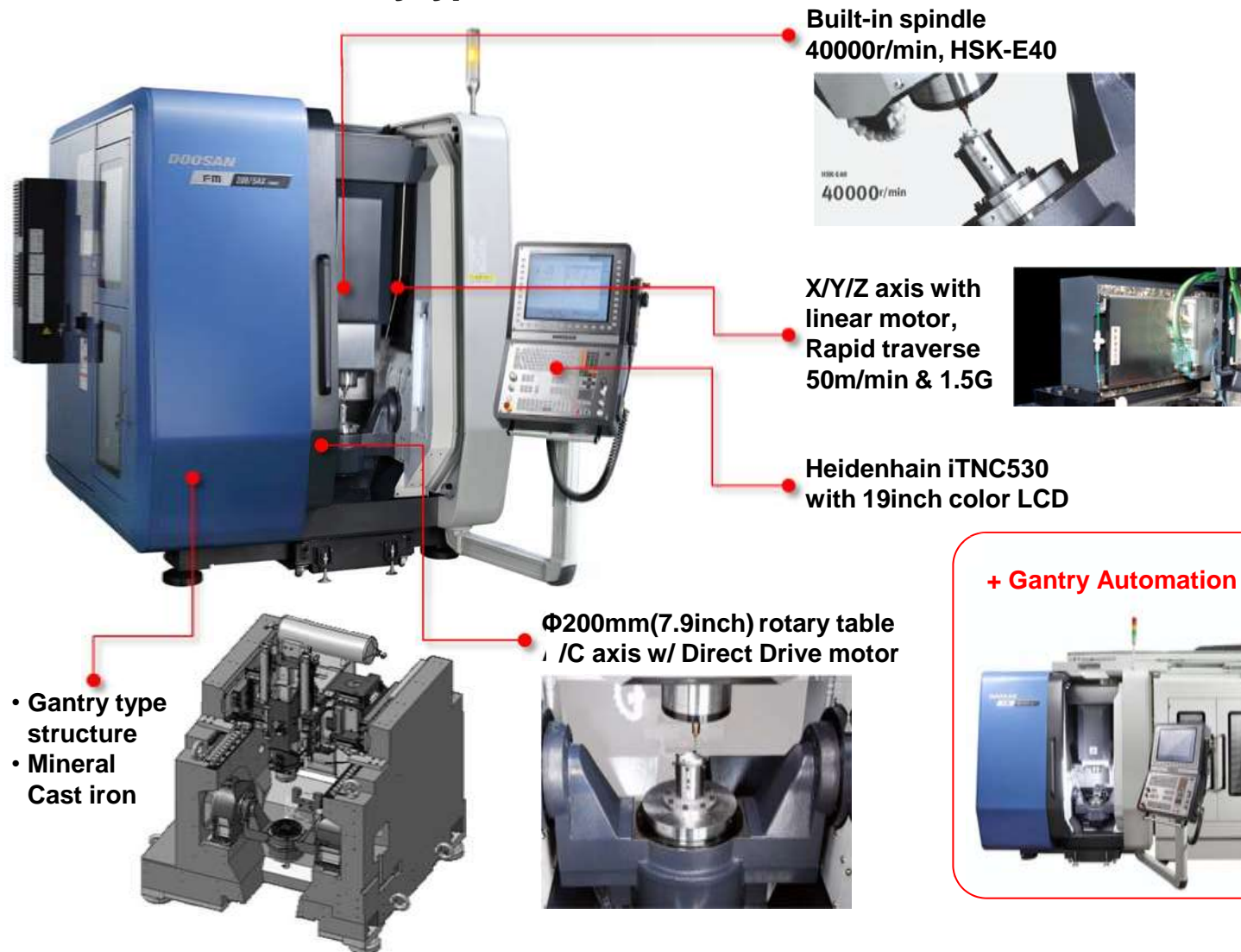
# FM 200/5AX *linear* x 2

Super Precision & Speed, Simultaneous 5 axes Vertical Machining Center with Linear Motor & Gantry type structure

Mass production

[DIMF]

Turbo charger impeller & Gantry loader



+ Gantry Automation system



# Multi purpose VMC \_ VCF series

← Function →

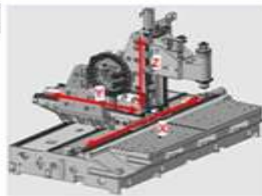
Y travel (mm)	Tool taper	X travel (mm)	3 axis		5 axis			
			F0iM (std.)	iTNC530 (opt.)	4+1 axis		Simultaneous 5 axis	
					F0iM (std.)	iTNC530 (opt.)	iTNC530 (std.)	F31i5 (opt.)
850	#40	2000	VCF 850		VCF 850SR			
		3000	VCF 850L		VCF 850LSR			

VCF	850	L	S	R
①	space	②	③	④

- ① VCF : **V**ertical **C**olumn moving **F**ixed table  
 ② 850 : **Y** axis travel **850**mm  
 ③ None : X axis travel 2000mm  
**L** : X axis travel **3000**mm  
 ④ SR : **S**wivel head & Doosan NC **R**otary Table  
 - Doosan Mounted type Φ500mm (A axis)  
 - Doosan Integrated type Φ800mm (C axis)  
 None : 3axis model

1 VCF 850/L

• 3-axis



2 VCF 850SR/LSR

• 5-axis


- 4+1 axis

- simultaneous

5 axis

X/Y/Z, B/C  
or  
X/Y/Z, B/A



Item	Unit		VCF 850 series		
			① VCF 850/L	② VCF 850SR/LSR	
			3 axis	5 axis w/ Swivel head & NC rotary table	
4+1 axis	Simultaneous 5 axis				
CNC	Std.		F-0iMD	F-0iMD	iTNC530
	Opt.		iTNC530	iTNC530	F-31iB5
Spindle speed	r/min	Std.	12000	12000	12000
		Opt.*	Please consult our sales engineer for higher RPM specification machines		
Tool storage capacity	ea	Std.	30	30	30
		Opt.	60	60	60
NC Rotary table	mm	Opt. #1		Doosan Mounted type Φ 500mm (A axis)	
		Opt. #2		Doosan Integrated type Φ 800mm (C axis)	
		others		Mounted type (additionally)	
Others	Opt.		Center partition		
			Pick-up magazine		
			TS27R or 3D touch probe		
			Linear scale		

# VCF 850SR, VCF 850LSR x 2

Mass production

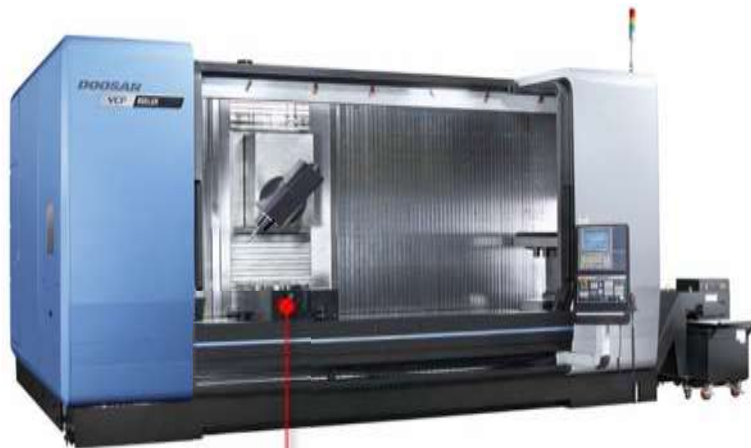
## Multi purpose column moving vertical machining center,

3-axis to simultaneous 5-axis with X-axis column moving, fixed table & Y-axis 850mm(33.5inch) or swivel head / Doosan rotary table

- 3 axis : X/Y/Z      - 5 axis : X/Y/Z + B (Swivel head) + A or C (Doosan Rotary Table)

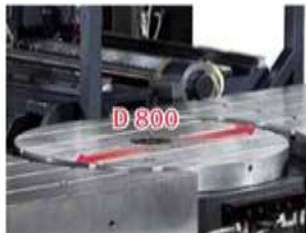
[DIMF]

Drill bit / Housing



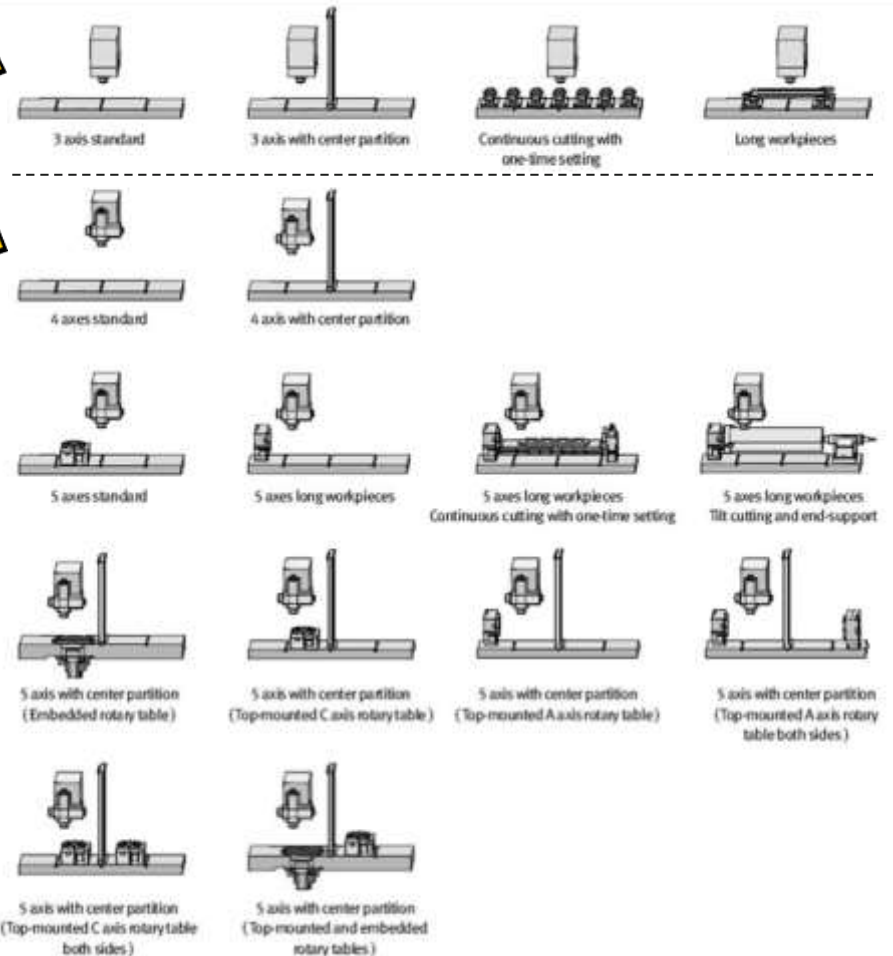
Rotary Table

Embedded and top-mounted type tables are available to satisfy a diverse range of machining applications. Both versions provide continuous rotary movement for complex and accurate machining. Hydraulic clamping of the rotary axis also allows heavy duty cutting to be achieved.



• VCF 850/L  
- 3-axis  
- 2m & 3m X-axis

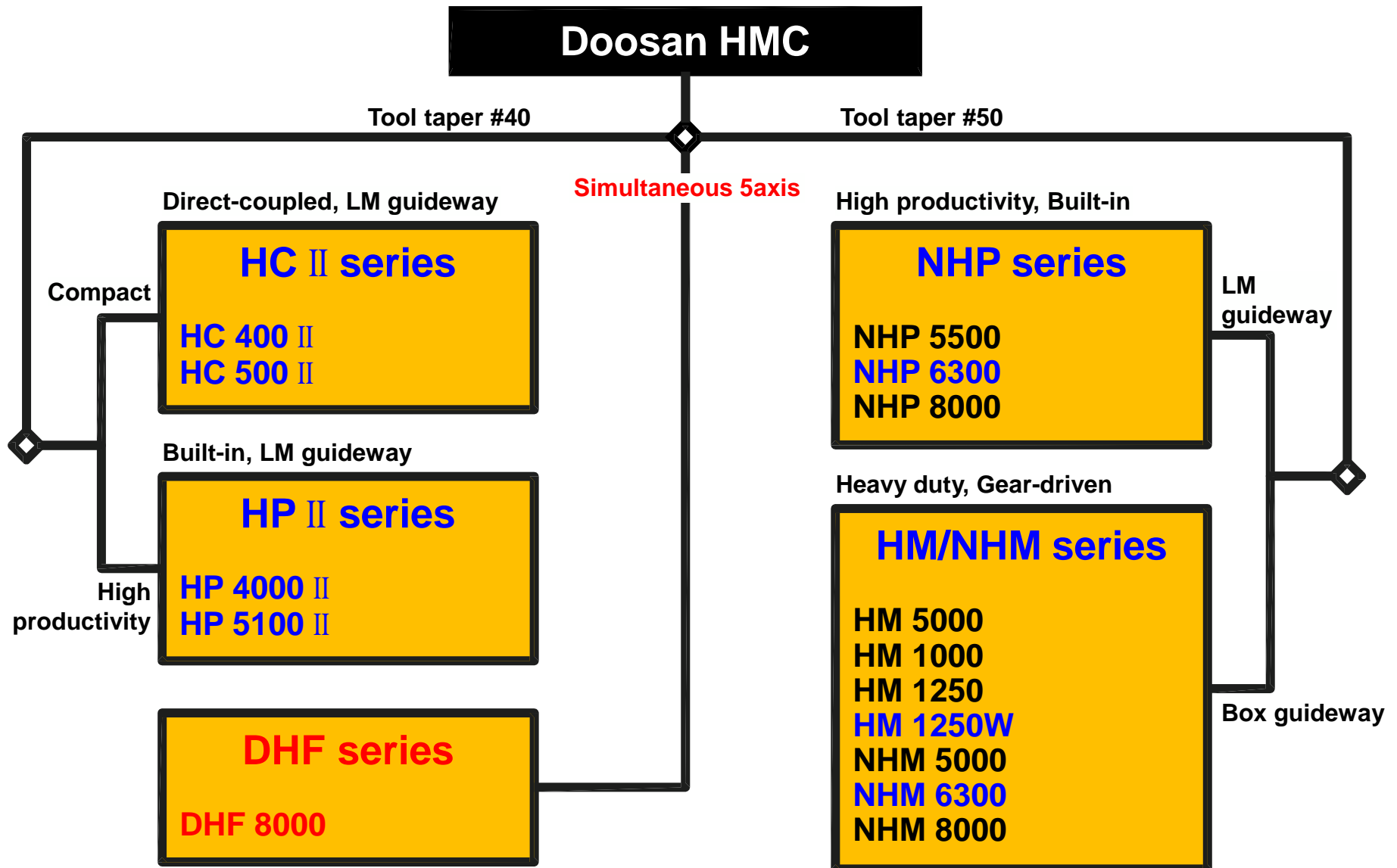
• VCF 850SR/LSR  
- 4+1 axis  
- simultaneous 5 axis





# HMC / 5AX

Concept...





HC 400 II, HC 500 II

Mass production

## Compact #40 Horizontal Machining Center

- Changing color & Design as HP II series, New OP
- Easy to apply 6x6 & 8x8 hydraulic fixture lines / Easy field retrofit
- Spindle speed 8000/12000r/min, Adaptation of New CNC Parameter set & Servo Tuned up
- Tool storage capacity 40 (60/80/120/170/262)
- Compact pallet automation system 5APC or LPS compact

[DIMF]

5APC / Inboard door /  
Support bracket



HC 400 II with 5APC



HC 500 II



HP 4000 II, HP 5100 II

Mass production

# High speed & performance #40 Horizontal Machining Center

[DIMF]  
Joint / LPS II compact



HP 4000 II



High-speed  
built-in spindle  
20000r/min

HP 5100 II with LPS II compact(12pallets) & Matrix tool magazine 262 tools



## NHP 6300, NHM 6300

Mass production

[DIMF]

CS Turn cut / Heavy duty



**NHP #50 High-Speed, High-Productivity HMC**  
**NHM #50 Heavy-Duty HMC**

NHP 6300



High-speed  
built-in spindle  
15000r/min

NHM 6300 with New Matrix tool magazine 196 tools



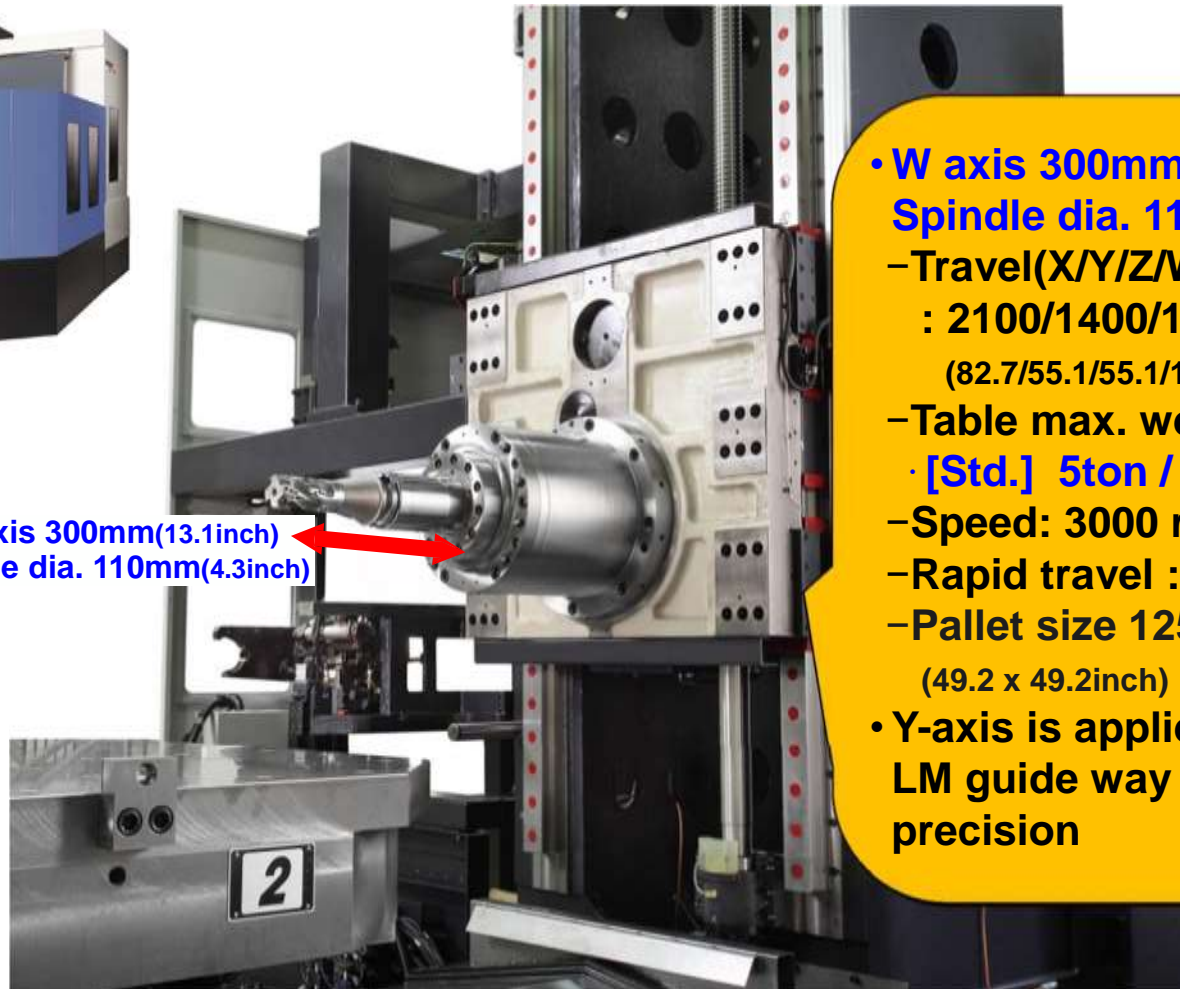
## HM 1250 with **W-axis** spindle

W-axis 300mm(13.1inch) spindle dia. 110mm(4.3inch), could be highly accurate small size NC boring /w APC



HM 1250

W axis 300mm(13.1inch)  
Spindle dia. 110mm(4.3inch)

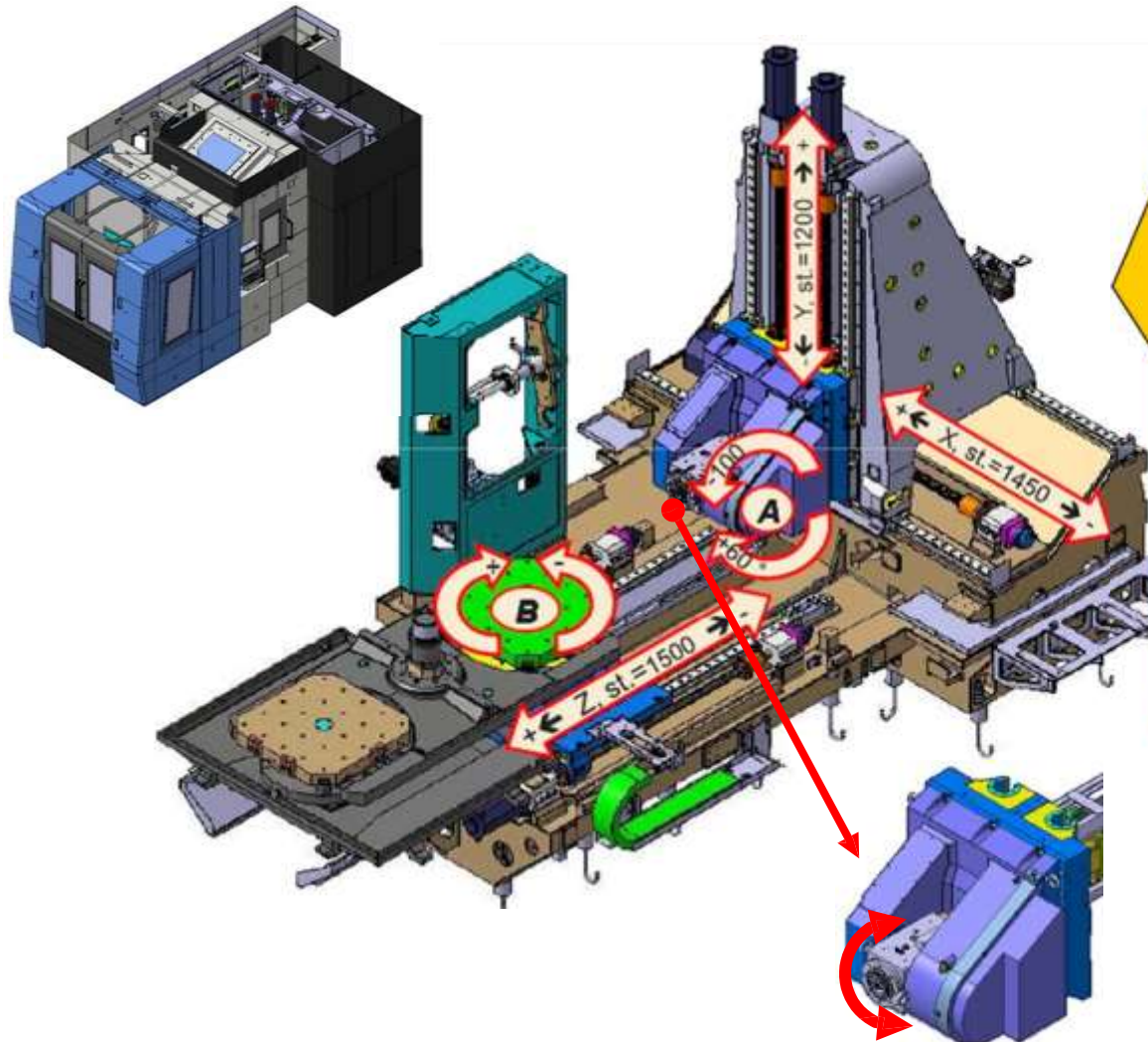


- **W axis 300mm(13.1inch) & Spindle dia. 110mm(4.3inch)**
  - Travel(X/Y/Z/W)  
: 2100/1400/1400/300mm  
(82.7/55.1/55.1/13.1inch)
  - Table max. weight / Spindle  
· [Std.] **5ton / 45kW**
  - Speed: 3000 r/min
  - Rapid travel : 24 m/min
  - Pallet size 1250 x 1250mm  
(49.2 x 49.2inch)
- **Y-axis is applied with Roller LM guide way for high precision**



# Doosan Horizontal simultaneous 5-axis machine

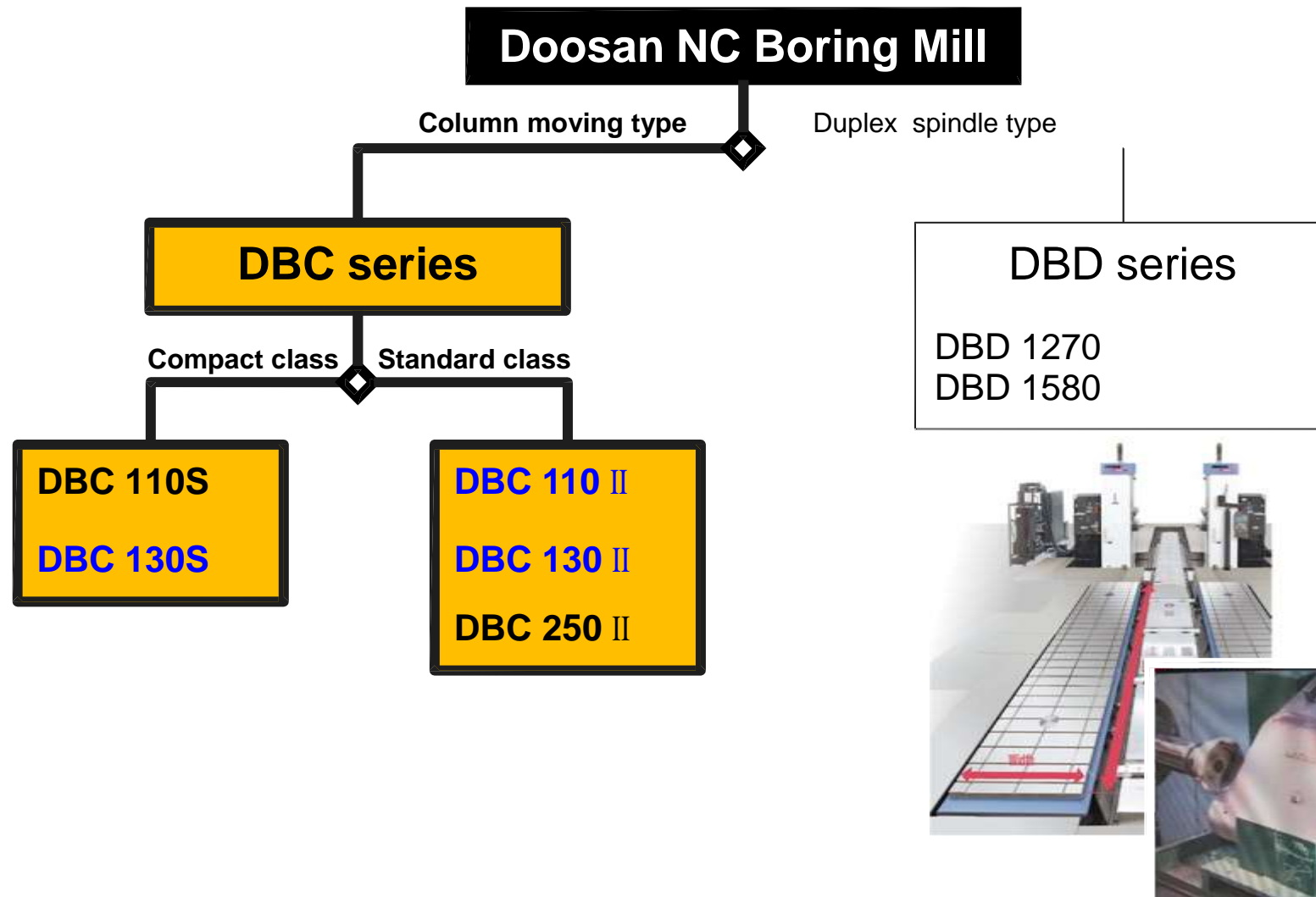
Simultaneously head nodding type 5-axis horizontal machining center with Pallet size □800mm suitable for machining complex shape & aerospace part



- Simultaneous 5-axis HMC
- Travel(X/Y/Z)  
: 1450 / 1200 / 1500 mm  
: Y axis w/ double ball screws
- Swivel angle (A/B)  
: +60 ~ -100deg. / 360deg.
- Pallet size : 800 x 800 mm
- Max workpiece size / weight  
: Ø1400 x H 1400 mm / 2000kg
- Spindle speed & torque  
: 2step gear driven 6000 r/min  
: 603 N.m
- Fanuc 31iB5 (15" LCD)

# NC Boring Mill

Concept...

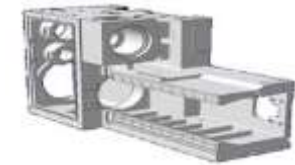




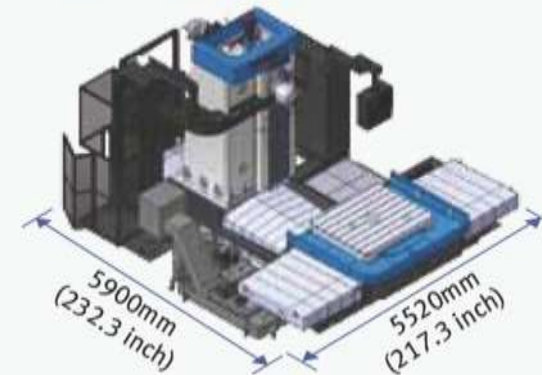
## Compact DBC S series

- Designed in compact size for small-medium size works
- Compact structure minimizes machine footprint

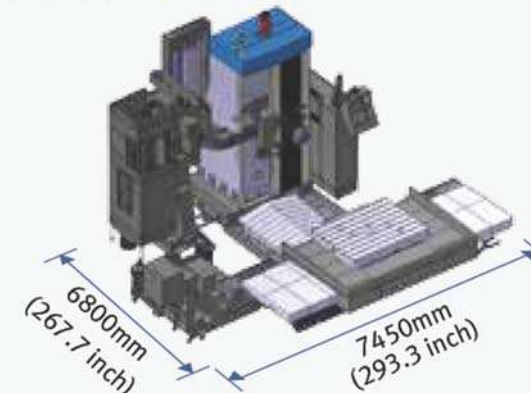
[DIMF]  
Spindle body



DBC 110S / 130S **New**



DBC 130SL **New**



## DBC II series

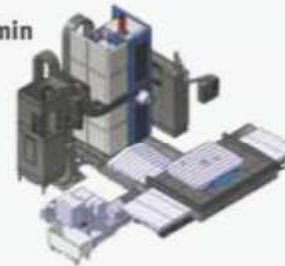
provides a wide line-up of models covering, high-productivity, Multi-functional, heavy loads and large workpieces



### Small / medium-sized, high-productivity DBC 110 II

- High-productivity model featuring high-speed spindle
- Superior for deep cutting – boring operation is possible up to the table center due to W-axis feeding

Spindle speed  
**4000 r/min**



### Heavy duty machining DBC 130P II

- The plane type table enables firm and stable setting of large workpieces for efficient cutting

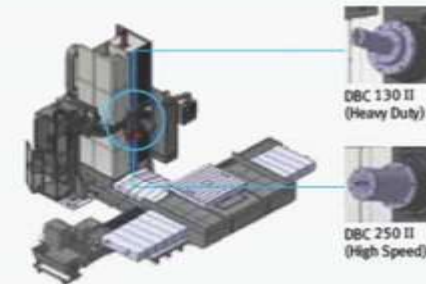
Table length  
**3000 mm**  
(118.1 inch)

Max. loading capacity  
**20000 kg**  
(44091.8 lb)



### Multi-purpose (Standard) DBC 130 II / 250 II

- A best-selling, standard model with a sales record of more than 1,000 units for the last decade – continuously upgraded with long-term design know-how and production technology.
- Shortest delivery time by modular system design.



### Large workpieces DBC 130L II / DBC 250L II

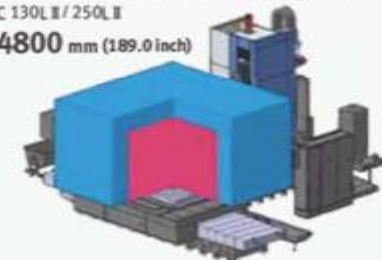
- Suitable for machining large workpieces

X / Y / Z axes travel distance  
**4000 / 2500 / 2000 mm**  
(157.5 / 98.4 / 78.7 inch)

Max. workpiece diameter (without splash guard)

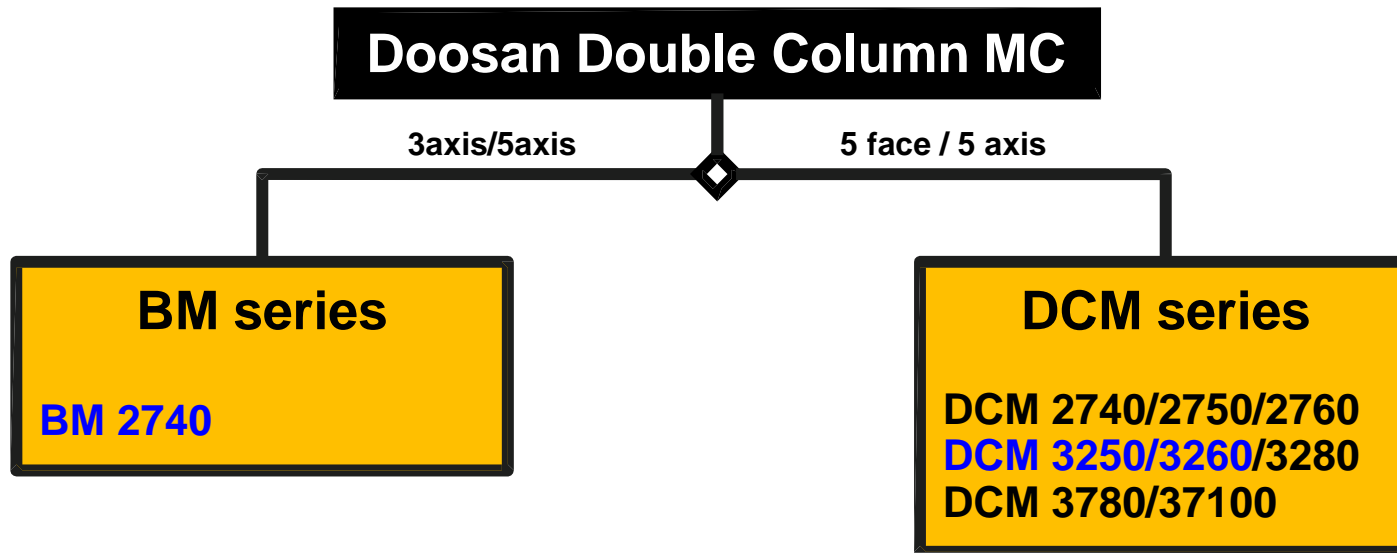
■ DBC 130 II / 250 II **Ø3900 mm** (153.5 inch)

■ DBC 130L II / 250L II  
**Ø4800 mm** (189.0 inch)



# Double Column MC

Concept...



# BM 2740M

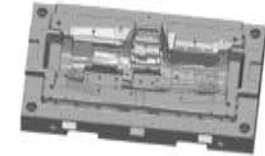
Mass production

## Multi-purposed Large sized Bridge Type Machining Center

In accordance with enhanced acceleration/deceleration characteristics due to a rigid machine structure, and high speed machining capabilities, the BM series provides unrivalled productivity for the production of plate materials and large parts for general industries & die/mold machining

[DIMF]

Die&Mold of Car panel



- **BM 2740**

- Highest productivity from rough to fine machining
- #50, 10000 r/min



- **BM 2740M**

- High precision, die & mold Machining
- #50, 12000 r/min



- **BM 2740P**

- Optimal for machining large-size plate materials
- #40, 12000 r/min

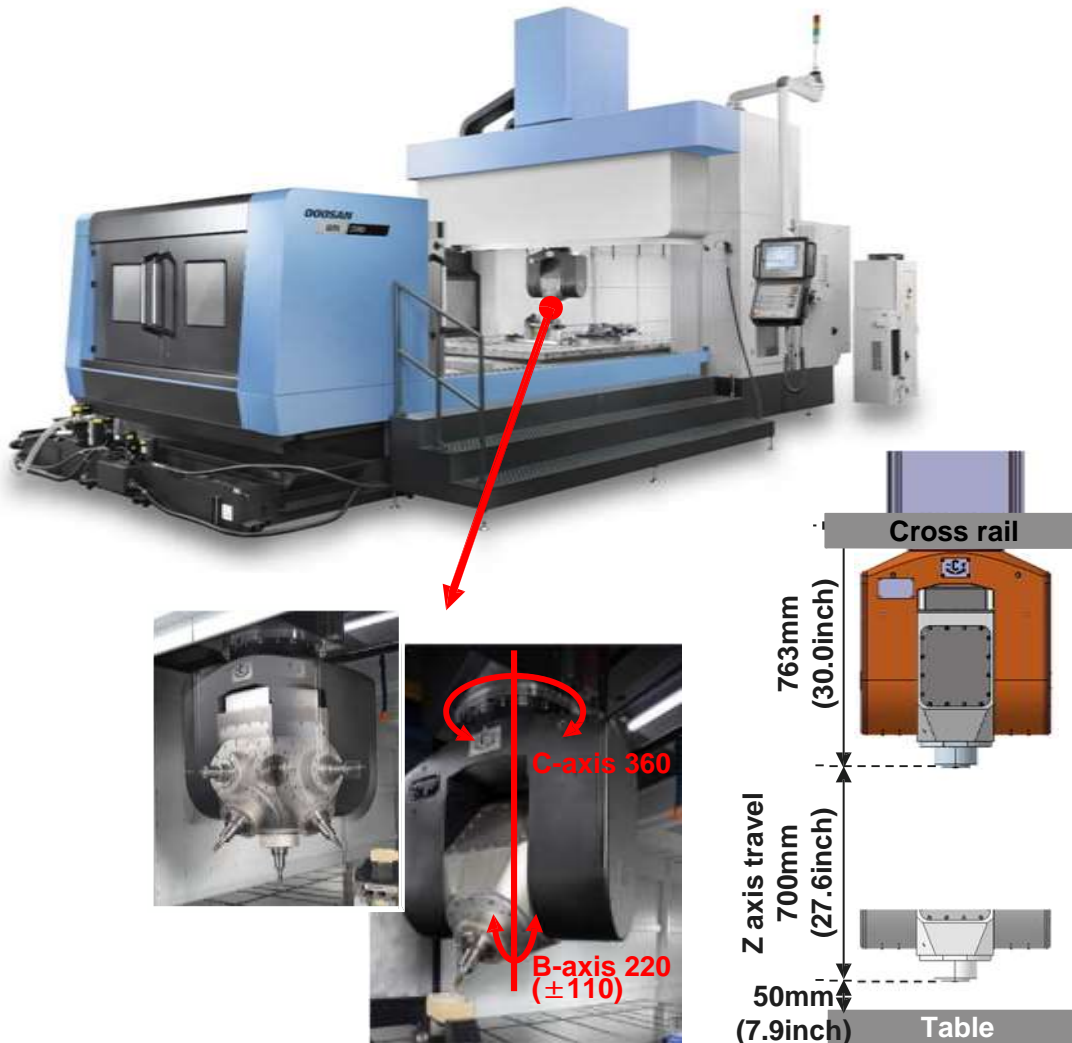


- **BM 2740U**

- Simultaneous 5-axis for large aerospace parts
- HSK-A63, 18000 r/min

# BM 2740M applied with Universal Head Attachment

Simultaneously 5axis machining for large size aerospace parts



- Based on Doosan BM 2740M applied with Universal head & 200mm(7.9inch) raising block
  - 18000 r/min & 40kW/138Nm, Tool Type HSK-A63
  - B/C 220/360 deg. (0.001deg.)
  - 200mm(7.9inch) raising block, Travel 4000 x 2500 x 700 mm (157.5 x 98.4 x 27.6 inch)
  - Simultaneously 5-axis w/ Heidenhain iTNC530



## DCM series



### Broad Range of Machining Capabilities

- The best specifications in its class – effective width between columns has been further extended by 200 mm(7.9 inch) for even broader machining capabilities.
- Ram spindles differentiated for various machining purposes and auto-changeable head attachment support a wide range of work from heavy-duty cutting to simultaneous 5-axis, high-speed, or high-precision mold machining.

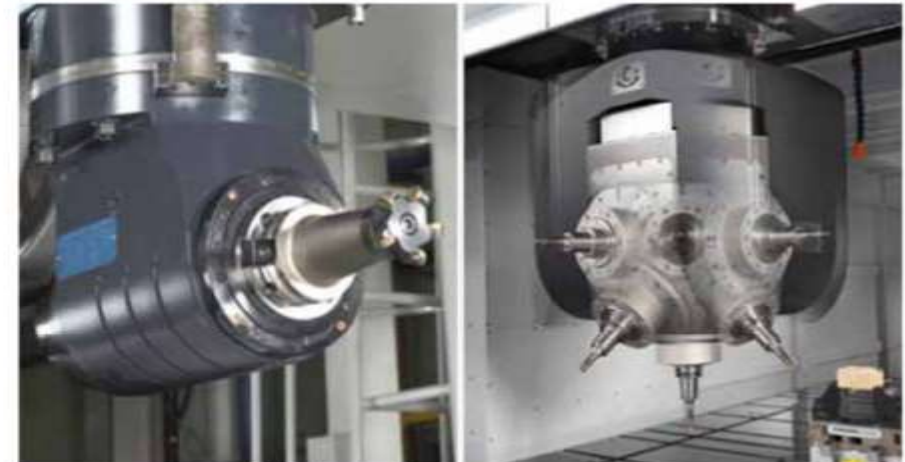
### High-Precision Mold Machining Performance

- Adoption of the DSQI/II/III functions, X/Y/Z/W axes linear scale, or X/Y/Z axes ball screw shaft cooling as options enables the machining of high-accuracy molds and general parts.

### Convenient Machining Functions

- The machining center provides a 5-face machining support system for very large works, easy setup guidance, easy pattern cycles, work load counter control, intelligent machining control and process monitoring function.

Diverse head attachments for a wider range of machining specifications



Diverse, auto-changeable head attachments enable mold machining or 5-face machining as well as minimum of 1° indexing cutting of free slant faces, various complex shapes, and simultaneous 5-axis cutting with 0.001° indexing.

